

Family Atherinidae

Body rather or quite elongate, subcylindrical or somewhat compressed. Eyes lateral, without adipose lids. Mouth cleft moderate, usually terminal, oblique, reaches to or beyond front of eye. Jaws equal or not. Teeth small, in jaws, sometimes on vomer, palatines or pterygoids, rarely absent. Opercular bones without spines or serratures. Gill openings wide, membranes not united, free from isthmus. Gills 4, slit behind fourth. Gill rakers usually long and slender. Pseudobranchiae present. Branchiostegals 5 or 6. Third and fourth upper pharyngeals joined together, with teeth.

1994

Air bladder present. No pyloric appendages. Vertebrae 32 to 60, of which 23 caudal. Scales moderate or small, usually cycloid, sometimes ctenoid. No lateral line, some scales often with pits or rudimentary mucous tubes. Two dorsals, well separated, first 3 to 8 slender flexible spines, second of 4 or 5 soft rays or spine and 3 to 6 unbranched rays. Anal like soft dorsal, often larger, with weak spine. Caudal emarginate. Pectorals high, moderate or small. Ventrals small, usually abdominal, not far back, with small spine and 5 rays.

mostly small carnivorous fishes, abounding in great schools near the shores of temperate and tropical seas, a few in fresh water. Most have a silvery band along the sides, sometimes underlaid by dark pigment. Those of sufficient size are valued food fishes.

~~Attherina waltoni-jatow-in-Lenz~~

Attherina waltoni-jatow-in-Lenz,
Abhandl. Senckenberg. Gesell.,
vol. 21, p. 515, pl. 36, fig. 12, 1898
(type locality, Zanzibar).

The description of this species,
as well as the figure, show it
is the young of some member of
the Mullidae, as the types are
given as only 90 to 80 mm long.

matter, and though it is true there are greatly in excess of any given for the species, the specimen is also apparently the largest hitherto reported and therefore must be placed on record to show the greatest number observed. The pores in the lateral line are 73 to the caudal base and are a corresponding increase. That the species is subject to still greater range in variation than Boulenger or Barnard give me also believe Bodianus indelebilis Fowler a synonym, as it shows scales 72+; ~~front~~ ^{tubes} 40, scales above 15, 29 below, and its color orange with head and back in front with small round golden spots. Cephalopholis obtusauris Evermann and Seale is another synonym, based on a slightly larger uniform

Analysis of Genera

a. Dorsals rather close, height of first greater than interorbital; body rather deep and usually well or strongly compressed; vertebrae 33 to 37.

b. Bedotiinae. Caudal truncate or rounded; premaxillaries little protractile, crooked or with notch on lower edge. Bedotia.

b. Rheochlinae. Caudal forked; premaxillaries well protractile, oblique, straight, without notch on lower edge.

c. Trunk scales. Rheocles.

c. Trunk with nape, occiput, on breast and belly naked. Rheocloides.

belly without fleshy keel; head scaled on sides and top, trunk entirely scaled; anal rays 6 to 18.

1997

Analysis of Genera

a. Dorsals rather close, height of first greater than interorbital; body rather deep and usually well or strongly compressed; vertebral 33 to 37.

b. Bedotiinae. Caudal truncate or rounded; premaxillaries little protractile, crooked or with notch on lower edge. Bedotia.

b. Rheochlinae. Caudal forked; premaxillaries well protractile, oblique, straight, without notch on lower edge.

c. Atherininae. Dorsals well separated, height of first less than interdorsal; body more or less slender; vertebral more numerous, 39 to 56.

d. Body not sharply compressed; belly without fleshy keel; head scaled on sides and top, trunk entirely scaled; anal rays 6 to 18.

on Love
 the Affection
 right of
 only more
 oddie man
 at 13 o'clock
 feeling

This image shows a single sheet of white paper with faint, horizontal blue or grey ruling lines. The paper is oriented vertically. In the top left corner, there is a small, dark, teardrop-shaped mark or smudge. The rest of the page is mostly blank, with some very light, illegible markings that appear to be bleed-through from the reverse side.

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d.¹ Head without external dermal points or short spines anteriorly; vertebral more or less advanced.

f.¹ Lower gill rakers 16 to 28; maxillary usually reaches front of eye or beyond; teeth moderate, small, seldom absent from vomer. Atherina.

f.² Lower gill rakers 10 to 12; maxillary not reaching front of eye, short; teeth feeble or obsolete in jaws, none on palate. Craterocephalus.

d.² Snout and front of head with external dermal points or short spines anteriorly; vent little advanced. Atherion.

d.² Body sharply compressed; belly with fleshy keel; head and front part of trunk naked; anal rays 23. Iso.

1999

Genus Bedotia Regan

Bedotia Regan, Rev. Suisse Zool.,
vol. 11, p. 416, 1903. (Type Bedotia
madagascariensis Regan,
monotypic.)

Body elongate, fusiform, slightly
compressed. Head moderate,
pointed. Snout rather long. Eye
moderate, little advanced from
middle. Mouth oblique, lower
jaw little protruded. Premaxillaries
little protractile, anterior part
separated from lateral part by
notch. Villiform teeth in jaws,
front edge of vomer and on
palatines. ^{Scales cycloid, moderate.} First dorsal of 4 or
5 flexible spines, well separated
from second dorsal, which with
9 to 13 branched rays. Anal like

second dorsal but longer, with
spine and 14 to 19 branched rays.
Pectoral moderate, inserted little
↑ over middle in body depth.
Caudal rounded or truncate.

Ventral moderate.

Fresh waters of Madagascar.

Family Bedotidal

Analysis of species

a.¹ Ventral inserted below middle of pectoral; second dorsal I, 11; A, I, 18; caudal truncate. madagascariensis.

a.² Ventral inserted below last third of pectoral.

b.¹ Second dorsal rays 9 to 12, anal 14 to 17; caudal truncate.

geayi.

b.² Second dorsal rays 13, anal 19; caudal somewhat rounded.

longianalis.

a.³ ~~Ventral~~ dorsal inserted below end of pectoral; dorsal rays 12 or 13, anal 17; caudal rounded. tricolor.

Genus Bedotia Regan

Bedotia Regan, Rev. Suisse Zool.,
vol. 11, p. 416, 1903. (Type Bedotia
madagascariensis Regan,

Bedotia madagascariensis Regan

- Bedotia madagascariensis Regan,
 Rev. Suisse Zool., vol. 11, p. 416, pl. 14,
 fig. 2, 1903 (type locality, Madagascar).
 — Boulenger, Cat. Fresh Water
 Fish. Africa, vol. 4, p. 77, 1916
 (copied). — Jordan and Hubbs,
 Stanford Public., p. 20, 1919
 (reference). — Pellégrin, Mém.
 Acad. Malgache, vol. 14, p. 164, fig.
 89, 1933 (compiled).
 — Regan, Ann. Mag. Nat. Hist., ser. 9,
 vol. 5, p. 421, May 1920 (Lake Rasoabé).

Serranus leopardus (part) Günther,
 Journ. Mus. Godeffroy, vol. 1, pt. 1, 1873,
 p. 4.

Epinephelus somerati (part) Barnard,
 Ann. South Afr. Mus., vol. 21, 1927, p. 472

(Fowler's reference to Delagoa Bay
 example).

Bodianus indebilis Fowler, Journ.
 Acad. Nat. Sci. Phila., ser. 2, vol. 12, 1904,
 p. 521, pl. 17, lower figure. Padang, Sumatra.

Cephalopholis obtusauris Evermann and
Seale, Bull. Bur. Fisher., vol. 22, 1906

(1907), p. 77, fig. 12. Bacan. — Seale and
Bean, Proc. U. S. Nat. Mus., vol. 33, 1907,
 p. 243 (Zamboanga).

Depth 4; head $3\frac{3}{5}$. Snout $2\frac{4}{5}$ in head from snout tip; eye $4\frac{1}{8}$, $1\frac{1}{2}$ in snout; mouth reaches $\frac{1}{3}$ in eye, length $2\frac{3}{5}$ in head from snout tip; interorbital 3, with eye slightly impinging in profile.

Scales 35 in lateral series; 8 transversely.

D. V — I, 11, third spine $2\frac{1}{5}$ in total head length, last ray 2; A. I, 18, ninth ray 2; caudal $1\frac{1}{6}$, rounded behind; least depth of caudal peduncle $2\frac{3}{4}$; pectoral $1\frac{2}{5}$, rays I, 12; ventral rays I, 5, fin $1\frac{7}{8}$ in head.

Uniform brown. Length 90 mm.
(Pellegrin.)

Madagascar.

2004

Bedotia grayi Pellegrin

- Bedotia grayi Pellegrin, Bull.
Mus. Hist. Nat. Paris, vol. 13, p.
205, 1907 (type locality, Mananjary,
Madagascar); Bull. ~~Acad. Malgache~~
~~Sci. Ind. Madagascar~~, vol. 55, p. 190, 1907
Mus. Hist. Nat. Paris, vol. 13, p. 205, 1907
(Mananjary, Madagascar).
— Boulenger, Cat. Fresh Water Fish.
Africa, vol. 4, p. 77, 1916 (compiled).
— Jordan and Hubbs, Stanford
Public., p. 20, 1919 (reference).
— Pellegrin, Mém. Acad. Malgache,
vol. 14, p. 164, pl. 3, fig. 4, 1933 (types;
Tamatave, Fénérive; Farafungana,
Karianga, Befotaba, Mananana
River).

predorsal scales forward to front nostril. Vertical fin covered with small scales basally over rayed portions. Opercle with fine scales. Lateral line arched nearly parallel with back.

D. IX, 15, I, fourth spine $3\frac{1}{2}$ in total head length, seventh ray 3; A. III, 9, I, second spine $2\frac{7}{8}$, sixth ray $2\frac{1}{3}$; caudal $1\frac{4}{5}$, convex; least depth of caudal peduncle $3\frac{1}{5}$; pectoral $1\frac{2}{3}$; ventral 2.

Orange, many scales on body above pale dusky. Head and front of back with small, round, golden spots. Iris deep golden orange. Brown spot on soft dorsal edge at thirteenth ray equals pupil. Anal and ventral with narrow dusky edges. Caudal

Depth $4\frac{4}{5}$ ($3\frac{1}{3}$ to $4\frac{1}{3}$ in description); head $2\frac{7}{8}$ (3 to $3\frac{1}{3}$ in description). Snout 3 in head from snout tip; eye $4\frac{7}{8}$ (3 to $3\frac{1}{2}$ in description), $1\frac{2}{3}$ in snout; maxillary reaches $\frac{1}{2}$ in eye, length $2\frac{1}{6}$ in head from snout tip; teeth small, villiform, form 2 large areas anteriorly in jaws, in narrow band on vomer and palatines; interorbital 2 to $2\frac{1}{3}$ in head, very low. Lower gill rakers 12.

Scales 32 to 35 in lateral series; 9 or 10 transversely, 12 around caudal peduncle.

D. IV or V — I, 9 to 12, second spine $3\frac{1}{5}$ in total head, last ray $2\frac{1}{2}$; A. I, 14 to 17, last ray $2\frac{1}{6}$; caudal $1\frac{1}{2}$, truncate or feebly emarginate; least depth of caudal peduncle 3; pectoral $2\frac{1}{2}$, rays I, 11; ventral rays I, 5, fin $2\frac{4}{5}$ in total head length.

2006

Brown on back, yellowish below.
Lower jaw black. Broad black
axial lateral band, well
marked posteriorly and extended
on caudal base. Caudal orange
yellow, terminally above and below
dark red. narrow yellow basal
line on anal, edged with red.
Pectoral base gray. Length 91 mm.
(Pellegrin)

Madagascar.

Bedotia longianalis Pellegrin

Bedotia longianalis Pellegrin,
Bull. Soc. Zool. France, vol. 39,
p. 178, 1914 (type locality,
Mahambo, Eastern Madagascar)
(no description). — Jordan and
Hubbs, Stanford Public., p. 20,
1919 (reference). — Pellegrin, Mém.
Acad. Malgache, vol. 14, p. 166, pl.
3, fig. 5, 1933 (type).

Depth $2\frac{4}{5}$; head $2\frac{2}{3}$; width $2\frac{1}{3}$.
 Snout 4 in head from upper jaw
 tip; eye $5\frac{1}{2}$, $1\frac{1}{5}$ in snout, greater
 than interorbital; maxillary
 reaches opposite hind eye edge,
 expansion $1\frac{1}{8}$ in eye, length 2 in
 head from snout tip; teeth small,
 inner depressible, outer strong
 erect teeth in each jaw but little
 enlarged; 2 canines in front of
 each jaw; interorbital $7\frac{1}{2}$, nearly
 level; upper opercular spine most
 distant, lowest most advanced.
 Gill rakers 6 + 16, lanceolate, $\frac{2}{5}$
 of eye; 4 above and 4 below
 rudimentary.

Scales 72 in lateral line to
 caudal base; tubes 40 in lateral
 line to caudal base; 15 scales
 above lateral line, 29 below, 60

Depth $4\frac{7}{8}$ ($4\frac{1}{2}$)^{in description}; head $3\frac{1}{4}$ ($3\frac{1}{2}$)^{in description}. Snout $3\frac{1}{2}$ ($3\frac{1}{2}$)^{in description} in head from snout tip; eye $4\frac{1}{5}$, $1\frac{1}{2}$ in snout; maxillary reaches $\frac{1}{4}$ ($\frac{1}{2}$ in description) in eye, length $2\frac{1}{8}$ in head from snout tip; teeth small, villiform, in broad band anteriorly in jaws, outer more or less flaring horizontally; broad band on vomer, narrow on palatines; interorbital $2\frac{1}{2}$ in head, very low. Lower gill rakers 11.

Scales 34 in lateral series; 8 transversely, 12 around caudal peduncle.

D. V - I, 13, third spine $2\frac{7}{8}$ in total head length, last ray $2\frac{1}{2}$; A. I, 19, last ray $2\frac{2}{3}$; caudal $1\frac{1}{2}$, convex behind; least depth of caudal peduncle $2\frac{2}{3}$; pectoral 2, rays I, 11; ventral rays I, 5, fin $2\frac{1}{10}$ in total head.

Brownish on back, yellowish below.

2009

Lateral silvery band, not ^{deeply} pigmented
laterally. Fins grayish, ventrals
yellowish. narrow short dark
band on anal base. Median
caudal rays dark. Length 92
mm. (Pellegriin!)

Madagascar.

2010

Bedotia tricolor Pellegrin

Bedotia tricolor Pellegrin, Bull.
Soc. Zool. France, vol. 57, p. 85, 1932,
(type locality, Farony River, Manakara
Province, Madagascar); Mém.
Acad. Malgache, vol. 14, p. 166, pl. 3,
fig. 6, 1933 (types).

Depth $4\frac{3}{5}$ (4 in description); head
 $3\frac{1}{2}$ ($3\frac{1}{4}$ to $3\frac{1}{3}$ in description). Snout
3 in head from snout tip; eye
 $4\frac{1}{2}$ (3 to $3\frac{1}{3}$ in description), $1\frac{3}{5}$ in
snout; maxillary reaches $\frac{1}{3}$ in eye,
length $2\frac{1}{8}$ in head from snout tip;
teeth small, villiform, 2 broad
areas anteriorly, in narrow band
on vomer and palatines; interorbital
 $2\frac{1}{2}$ in head. Gill rakers 12 below.

Scales 35 or 36 in lateral series,
9 or 10 transversely, 12 around
caudal peduncle.

Bedotia longianalis Pellegrin

Bedotia longianalis Pellegrin, Bull.
Soc. Zool. France, vol. 39, p. 178, 1914
(type locality, Mahambo,

— Jordan and Hubbs, Review of
Atherinidae, p. 20, December 18, 1916
(reference). — Pellegrin, Mém. Acad.
Malgache, vol. 14, p. 166, pl. 3, fig. 5,
1933 (type).

(2011)

D. $\overline{\text{V}}$ - I, 12 or 13, second spine $2\frac{1}{2}$
in total head length, last ray $2\frac{1}{8}$;
A. I, 17, last ray 2; caudal $1\frac{2}{5}$,
convex behind; least depth of
caudal peduncle $2\frac{1}{2}$; pectoral 2,
rays I, 11 or 12; ventral rays I, 5,
fin $2\frac{1}{2}$ in total head length.

Yellowish olive on back, paler
yellowish below. Broad black
axial lateral band to middle of
caudal. Broad black band along
soft dorsal and anal base and
yellow band bordered with red.
Caudal with black crescent,
curved posteriorly, ~~inside yellow~~
~~and red~~ then yellow and red
and hind fin edge blackish.

Length 83 mm. (Pellegrin.)

Madagascar.

Genus Rheocles Jordan and Hubbs
Rheocles Jordan and Hubbs, Proc.
 Acad. Nat. Sci. Philadelphia,
 1919, p. 343. (Type Eleotris
siborae Sauvage, monotypic.)

Body elongated, fusiform, robust,
 sides compressed. Head moderate,
 pointed. Snout rather long. Eye
 moderate, little advanced from
 middle. Mouth oblique, lower
 jaw protruding. ~~Premaxillary~~ ^{reach to or below eye.} without
 notch on lower border. Teeth in
 jaws small, conic, also on vomer and
 palatines. Branchiostegals 9 to 11.
 Pseudobranchiae present. Lower
 gill rakers conic, less than 12.
 Scales large, cycloid. First dorsal
 of 6 spines, flexible, not extended
 as filaments, second dorsal with
 spine and 10 to 16 rays. Anal like

series visible when mouth closed;
interorbital 3, rather low. Gill
rakers $5 + 7$, short points, $\frac{1}{4}$ of
gill filaments, which $1\frac{1}{4}$ in eye.

Scales 72 close along and above
lateral line to caudal base; tubes
50 in lateral line to caudal base,
each with terminal expansion as
double or bilobed; 11 above, 11
above anal origin; 32 predorsal
of which 19 forward to occiput.
Suprascapula with denticulate
edge. Scales with 8 or 9 basal
radiating striae; circuli concentric,
line; ciliated predorsal scales
with 5 or 6 long slender erect
denticles, each with 1 to 5 series of
transverse basal elements.

D. XI, 24, I, fifth ^{height,} spine 3 in
head, soft dorsal $2\frac{1}{2}$; A. II, 8, I,
second spine 3, third ray 2;
caudal $1\frac{1}{3}$, median rays longest;

second dorsal, with spine and 14 to 16 rays. Caudal emarginate behind. Pectoral moderate, placed above middle in body depth. Ventral moderate.

Fresh waters of Madagascar.

Analysis of species

- a.¹ Maxillary reaches below hind eye edge; second dorsal rays 16. siborae.
- a.² Maxillary reaches front eye edge; second dorsal rays 10 to 12. alaotrensis.

Family Rheoclidæ

Rheocles siboral (Savoye)

Electrix siboral Savoye, Hist.
Nat. Madagascar, Wiss., p. 521,
pl. 44c, fig. 2, 1891 (type locality,
Madagascar). — Pellegrin, Bull.

Mus. Hist. Nat. Paris, vol. 13, p.
205, 1907 (type);

Bull. Soc. Zool. France, vol. 39, p. 48, 1914
(type).

Utheria siboral — Utheria, p. 1.

— Utheria, p. 11, p. 11, p. 11, p. 11.

— Utheria, p. 11, p. 11, p. 11, p. 11.

— Utheria, p. 11, p. 11, p. 11, p. 11.

— Utheria, p. 11, p. 11, p. 11, p. 11.

— Utheria, p. 11, p. 11, p. 11, p. 11.

— Pellegrin, Mém. Acad.

Malgache, vol. 14, p. 160, pl. 3, fig. 1,
1933 (type).

Variola louti (Forskål).

Perca louti Forskål, Descript. Animal., 1775, pp. 11, 40. Djidda and Lohaja, Red Sea. — Bonnaterre, Tabl. Ichth., 1788, p. 133 (Red Sea). — Gmelin, Syst. Nat. Linn., vol. 1789, p. 1318 (Arabia). — Walbaum, Artedi Pisc., vol. 3, 1792, p. 338 (on Forskål).

Bodianus louti Suckow, Naturgesch., vol. 4, 1799, p. 517 (Red Sea). — Schneider, Syst. Ichth. Bloch, 1801, p. 332 (Red Sea). — Lacépède, Hist. Nat. Poiss., vol. 4, 1802, pp. 278, 286 (Arabia).

Serranus louti Rüppell, Atlas Reise nördl. Afrik. Fische, 1828, p. 106, pl. 26, fig. 2 (Mohila). — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 101 (Copang, Timor; Mauritius; Red Sea; Amboyna). — Playfair, Fishes of Zanzibar, 1866, p. 1 (Zanzibar). — Günther,

Depth $5\frac{1}{3}$ ($4\frac{1}{2}$ in description); head $3\frac{1}{2}$. Snout 3 in head; eye $4\frac{1}{2}$; (~~$3\frac{1}{3}$ in description~~), $1\frac{2}{5}$ in snout; maxillary reaches opposite hind eye edge, length $1\frac{7}{8}$ in head from snout tip; teeth small, villiform, form wide band in front of jaws; small teeth on vomer and palatines; interorbital very low. Gill rakers below 9.

Scales 39 in lateral series; 11 transversely, 14 around caudal peduncle. Head naked above.

D. VI - I, 16, second spine $3\frac{1}{3}$ in total head length, soft dorsal height 3; A. I, 16, fin height $2\frac{2}{3}$; caudal $1\frac{1}{2}$, emarginate, least depth of caudal peduncle $2\frac{2}{3}$; pectoral 2, rays I, 16; ventral I, 5, fin $2\frac{1}{8}$ in total head length.

Yellowish with scale edges on back brownish. Lateral silvery

2016

band present. First dorsal
and pectoral gray, second
dorsal and anal yellowish
with black border. Pectoral
yellowish. Length 108 mm.
(Pellegrin.)

Madagascar.

2017

Rheocles
Atherina alaotrensis (Pellegrin)

Atherina alaotrensis Pellegrin,
Bull. Soc. Zool. France, ^{vol. 39,} 1914,
pp. 46, 178 (type locality,
Lake Alaotra, Madagascar);
vol. 39, 1914, p. 223 (reference).
— Boulenger, Cat. Fresh Water
Fish Africa, vol. 4, p. 76, 1916
(copied). — Regan, Ann. Mag. Nat.
Hist., ser. 9, vol. 5, p. 421, May 1920
(Lake Alaotra, Lake Rasvabé, Ambatohar-
anana).

Rheocles alaotrensis Jordan and
Habbs, Stanford Public, p. 20,
1914 (reference). — Pellegrin,
Mém. Acad. Malgache, vol. 14, p.
161, pl. 3, fig. 2, 1933 (types).

Cephalopholis pachycentron (Valenciennes).

Serranus pachycentron Valenciennes, Hist. Nat. Poiss., vol. 2, 1828, p. 295. East Indies.

Macleay, Proc. Linn. Soc. New South Wales, vol. 5, 1880, p. 314 (Port Darwin, Queensland). —

Serranus pachycentrum ~~Blunthier~~, Cat.

~~Fishes Brit. Mus., vol. 1, 1859, p. 116~~

~~Blunthier~~ Meyer, Ann. Soc. Españ. Hist. Nat. Madrid, vol. 14, 1885, p. 9 (North Celebes).

Epinephelus pachycentrum Boulenger, Cat. Fishes Brit. Mus., vol. 1, 1895, p. 178

(type, Ceylon, Madras, Singapore, Malay Archipelago, Lousiades). — Beaufort,

Bijdr. Dierk., Amsterdam, 1913, p. 111

(Saonek, Vaigiu; Amboina). — Weber,

Siboga Exped., vol. ⁵⁹ ~~65~~ ^{Fische}, 1913, p. 199 (Saleyer).

Petrometopon pachycentron Fowler, Journ.

Acad. Nat. Sci. Phila., ser. 2, vol. 12, 1904, p. 521 (Padang, Sumatra).

Depth $5 \frac{1}{4}$ ($3 \frac{1}{4}$ to 4 in description);
head $3 \frac{3}{4}$ ($3 \frac{1}{4}$ to $3 \frac{2}{3}$ in description).
Snout 3 in head from snout tip;
eye $3 \frac{4}{5}$ ($3 \frac{1}{3}$ to $3 \frac{3}{4}$ in description),
 1 to $1 \frac{1}{4}$ in snout, $1 \frac{1}{4}$ to $1 \frac{1}{3}$ in
interorbital; maxillary reaches
opposite front eye edge, length
 $2 \frac{2}{5}$ in head from snout tip;
small villiform teeth in front
part of jaw, forming band in
each; small teeth on vomer and
palatines; interorbital very low.
Lower-gill rakers 10 or 11.

Scales 38 to 42 in lateral
series; 9 to 11 transversely, 12
around caudal peduncle. Head
above, throat and breast naked.

D. VI - I, 10 to 12, second spine
 $2 \frac{2}{3}$ in total head length, first
branched ray $2 \frac{1}{5}$; A. I, 14 to 16,
third branched ray $2 \frac{4}{5}$; caudal $1 \frac{1}{3}$,
emarginate; least depth of caudal

2019

peduncle $2 \frac{7}{8}$; pectoral $1 \frac{2}{3}$, rays
I, 12 or 13; ventral I, 5, fin $2 \frac{1}{5}$
in total head length.

Greenish upon back, yellowish
upon sides and below. Silvery
lateral line, distinct posteriorly
on lateral line and occupies
longitudinal row of scales.
Fins dusky gray, ventrals with
yellowish. Length 140 mm.
(Pellegrin.)

Madagascar.

Genus Rheocloides Nichols and La Monte

Rheocloides Nichols and La Monte,
Amer. Mus. Novit. New York, No. 508,
p. 9, December 1931. (Type
Rheocloides pellegrini Nichols
and La Monte,

Body elongate, fusiform, sides
compressed. Head moderate.
Snout rather long. Eye rather
small, little premedian. Mouth
little inclined, reaches below
front of eye. Maxillary without
notch on lower border. Teeth
small, conic, outer larger,
unequal, in jaws. Vomer and
palate with teeth. Scales
large, cycloid, absent from
top of head, nape, chest, breast
and belly. First dorsal of

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4 or 5 flexible spines - and 12
soft rays. Anal somewhat
longer than second dorsal,
with flexible spine and 16
soft rays. Caudal forked.
Pectoral placed high.
Ventral origin below last
fourth of pectoral.

One species, distinguished
from *Rheocles* chiefly by its
naked or scaleless anterior
body.

Rheocloides pellegrini Nichols and
La Monte

Rheocloides pellegrini Nichols and
La Monte, Amer. Mus. Novit., New
York, no. 508, p. 9, pl. 1, fig. 1,
December 1931 (type locality, Andapa,
North East Madagascar). — Pellegrin,
Mém. Acad. Malgache, vol. 14, p. 162,
pl. 3, fig. 3, 1933 (paratype).

Depth $4\frac{1}{4}$ to $4\frac{1}{2}$; head $3\frac{1}{2}$ to $3\frac{2}{3}$.

Snout 3 in head; eye $4\frac{4}{5}$, $1\frac{3}{5}$ in snout, $1\frac{1}{5}$ in interorbital; maxillary reaches $\frac{1}{5}$ in eye, length $2\frac{1}{10}$ in head; jaws equal; interorbital very low. Lower gill rakers 6 or 7.

Scales 33 to 36 in lateral series; 9 transversely, 12 around caudal peduncle. Few scales on opercle and cheek.

D. IV or V - I, 12, third spine 3 in head, soft dorsal height $3\frac{2}{5}$; anal height $3\frac{2}{5}$; A. I, 15 or 16, caudal $1\frac{1}{3}$, forked, pointed lobes equal; least depth of caudal peduncle $2\frac{1}{2}$; pectoral $1\frac{7}{8}$, rays I, 13; ventral rays I, 5, length $\frac{1}{2}$ in head.

Yellowish, with black median axial line. Black blotch at pectoral base. Unpaired fins dusky, paired fins clear. Length 85 mm. (Pellegrin.)
Madagascar.

Genus Atherina Linnaeus

Atherina Linnaeus, Syst. Nat., ed. 10, pt. 1, p. 315, 1758. (Type Atherina hepsetus Linnaeus, monotypic.)

Membras Bonaparte, Fauna Italica, Pesc., vol. 3, pts. ~~XVII~~ - ~~XVIII~~, 1836. (Atypic.) (Type Atherina mochon Valenciennes, designated by Jordan, Copeia, no. 32, p. 47, 1916.)

Hepsetia Bonaparte, Fauna Italica, Pesci, vol. 3, fasc. ~~XVIII~~ ^{XVIII} ~~XVII~~ ₁₁, 1836. (Atypic.) (Type Atherina boyeri Risso, designated by Jordan, Copeia, no. 32, p. 47, 1916.) (Hepsetus Swainson 1839 different and not involved.)

Ideniomembras Ogilby, Proc.
Linn. Soc. New ~~Zealand~~ South Wales,
vol. 23, 1898, p. 41. Type Atherina
microstoma Günther, monotypic.)

Atherinomorus Fowler, Proc.
Acad. Nat. Sci. Philadelphia,
1903, p. 730. (Type Atherina
lateiceps Poey, orthotypic.)

Pranaseus Whitley, Mem. Austral.
Mus., vol. 10, pt. 1, p. 9, August
28, 1930. (Type Pranaseus ogilbyi
Whitley = Atherina pinguis
Lacépède, monotypic.)

Blay, Fisher of India, pt. 1, 1875, p. 26,
vol. 8, 1876-77, pt. 1, (70) 222, fig. 3. —
Bl. 7, fig. 3; Fauna Brit. India, vol. 1,

(Mombasa, Nagpur, Bombay);
Fauna, Collier, Simon, Gmelin, Blanford,
Bent., vol. 7, 1873-76, p. 24. (Amnatia,
Mala Route. Mooker, Uttar. Ind.

D. X, 9, fourth spine $2\frac{1}{3}$ in head,
first ray $2\frac{3}{4}$; A. III, 9, second and
third spines subequal, $2\frac{7}{8}$ in head,
first ray $2\frac{1}{8}$; caudal $1\frac{1}{4}$, little
emarginate; least depth of caudal
peduncle $2\frac{2}{3}$; pectoral $1\frac{1}{10}$; ventral 2.

Yellowish, with silvery reflections.

Head brown. Gills and fins rose.

(Saurage.)

Bourbon, Delagoa Bay. The type, obtained
by Caimard, was 175 mm. long. Saurage
says this species is characterized by the
short snout and the convex front profile
above the eye.

Body elongate, partly cylindrical or feebly compressed, belly rounded. Head well compressed, rather attenuated. Mouth oblique, short. Mandible small, weak. Teeth small, conic, in jaws, on vomer and palatines. Vertebrae 43 to 56. Scales cycloid, moderate to rather large, extend on parts of head. Dorsal spines feeble, 5 to 9. Soft dorsal and anal opposite, similar. Pectoral short. Ventral inserted well behind pectoral base.

Widely distributed in the warm seas of the globe.

Epinephelus microdon Bleeker, Atlas
Ichth. Ind. Néerl., vol. 7, 1873-76, p.
39, pl. (2) 280, fig. 1 (Sumatra, Batu,
Lias, Java, Bawean, Celebes, Halmahera,
Batjan, Ternate, Buru, Timor, Ceram,
Amboina, New Guinea).

Epinephelus boelang (non Valenciennes)
Bleeker, Atlas Ichth. Ind. Néerl.,
vol. 8, 1876-77, pl. (68) 346, fig. 5.

I am ~~here~~ ²⁰²⁶ unable to properly
~~assign the various species to~~
~~the genus~~

The three following species so
imperfectly noticed that they are
here included only for
completeness:

Atherina ^v
~~Haplochromis~~ ~~waigiensis~~ ^v ~~waigiensis~~ ~~Edw. and Gaimard~~ ¹⁸²⁷

Atherina ^v waigiensis Duy and Gaimard,
voy. Uranie, Zool., p. 335, 1825

(type locality, Waigiu; Ramals).
— Günther, Cat. Fish. Brit.

Mus., vol. 3, p. 392, 1860 (reference).

— Jordan and Seale, Bull. Bur.

Fish., vol. 25, p. 216, 1905 (1906)

2028

Aetherina cylindrica Klunzinger

Aetherina cylindrica Klunzinger,
Verh. Zool. Bot. Ges. Wien, vol. 20,
p. 834, 1870 (type locality, Red Sea).

— Sauvage, Hist. Nat. Madagascar,
Poiss., p. 407, 1871 (reference).

Valenciennes, Hist. Nat. Poiss., vol.
10, p. 453, 1835 (type locality,
Waigiu).

to blackish ocellated saddles on
caudal peduncle above. Caudal with
2 dusky oblique subterminal bars
which converge behind or form a
lunate band.

Indian Ocean, Mascarene Islands,
India, East Indies, China, Melanesia,
Polynesia.

Body cylindrical. Above head less wide, its vertex without keel.

D. VII - I, 9; A. I, 13; pectoral short, not $\frac{1}{6}$ of body.

Back sky blue and silvery. Red ^{band} separating above ~~tint~~ tint of back from silvery streak of side. Belly whitish. Length 75 mm. (Valenciennes.)

Perhaps a synonym of Atherina pinguis.

Body moderately deep. Head somewhat long, ^{wider}. Snout short, rounded. Eye large, advanced. Mouth moderate, rami of mandible not elevated inside mouth. Premaxillary spine short, blunt. Teeth in villiform bands in pairs. Scales moderate, smooth or slightly crenate. Vertical fins more or less scaly. First dorsal usually postmedian, second dorsal origin little behind anal origin. Caudal forked. Pectoral moderate, high. Ventral smaller, below posterior part of depressed pectoral. Vent before ventral tips.

Closely related to Lithemna, differing chiefly in the low mandibles, which not abruptly elevated inside mouth.

Atherina hepsetoides Richardson

Atherina hepsetoides Richardson,
Ann. Mag. Nat. Hist., vol. 11, p. 178,
March 1843 (type locality, Port
Arthur, Tasmania). — Günther,
Cat. Fish. Brit. Mus., vol. 3, p.
397, 1860 (copied). — Macleay,
Proc. Linn. Soc. New South Wales,
vol. 5, pt. 2, p. 37, 1881 (copied). —
Jordan and Hubbs, Stanford
Public., p. 43, 1919 (reference). —
McCulloch, Mem. Austral. Mus.,
vol. 5, pt. 1, p. 107, June 29, 1929
(reference).

Depth 8 in total; head 6. Eye 3 in head,
little longer than snout; mouth cleft
oblique; teeth minute. Vertebrae 45.

D. IX — I, 11, spinous dorsal between
ventral base and vent; A. I, 11; ventral
pectoral 15. (Richardson.)

25 to 48-apical denticles with 3 or 4 transverse series of basal elements, obsolete rugosities in young, circuli fine.

D. IX, 15, I or 14, I, third spine $3\frac{2}{5}$ to $3\frac{1}{2}$ in total head length, eleventh ray $2\frac{1}{5}$ to $2\frac{1}{3}$; A. III, 9, I, third spine $3\frac{1}{4}$ to $3\frac{2}{5}$, seventh ray $2\frac{1}{8}$ to $2\frac{1}{5}$; caudal $1\frac{2}{3}$ to $1\frac{3}{4}$, convex behind; least depth of caudal peduncle $2\frac{2}{5}$ to $2\frac{4}{5}$; pectoral $1\frac{1}{2}$ to $1\frac{3}{5}$; ventral $1\frac{3}{4}$ to $1\frac{4}{5}$.

Brown or pale yellowish brown, head often darker than rest of body. Some examples show head and all anterior part of body finely spotted paler, spots all greater in diameter than interspaces. Often chest, prepectoral and abdomen pale spots greatly larger than on head.

^{Atherina}
Hepsetia edelensis (Castelnau) ^{doubtful 2031}

Atherinichthys edelensis Castelnau,
Proc. Zool. Soc. Victoria, vol. 2,
p. 134, May 10, 1873 (type locality,
Fremantle, West Australia).

— Macleay, Proc. Linn. Soc. New
South Wales, vol. 5, pt. 2, p. 42,
1881 (copied).

Hepsetia edelensis Jordan and
Hubbs, Stanford Public., p. 33,
1919 (reference). — McCulloch,
Mem. Austral. Mus., vol. 5, pt. 1,
p. 108, June 29, 1929 (reference).

$3\frac{1}{8}$ in total head length; A. I, 8,
sixth ray $2\frac{2}{5}$ to $2\frac{2}{3}$; caudal $1\frac{1}{6}$ to
 $1\frac{1}{3}$, convex behind; least depth of
caudal peduncle $2\frac{1}{2}$ to $2\frac{2}{3}$;
pectoral $1\frac{2}{3}$ to $1\frac{3}{4}$, rays I, 18;
ventral I, 5, fin $1\frac{7}{8}$ to 2 in total
head length.

General color gray brown
to brownish generally. Along
side 5 large ~~blackish~~, more or
less irregular blotches, variable,
penultimate more or less crescentic
and last as large rounded one
on caudal base. Dark streaks
back from eye to upper edge of
gill opening. Iris slate, pupil
greenish. Under surface of head
and abdomen pale to soiled.
Whitish due to dusky mottlings
made up of dark or blackish
brown dots. Dorsals grayish,
variegated with black, as

depth $6 \frac{1}{4}$; head $3 \frac{3}{4}$. First dorsal inserted at equal space from front part of snout and upper caudal base. Silvery band on each side. Length 65 mm. (Castelnau.)

Said to differ from ^{Atherina} ~~Hepsetta~~ punguis in the above characters.

One, 160 mm., Kratt; two, 123 &
147 mm. (caudal fins damaged)
Ban Thung Luang.

Asteochilus melanopleurus
(Bleeker).

Scales $45 + 3$. D. III, 18, I. All fins
dusky or dark gray terminally.
Dorsal dark neutral gray, rays
red. Anal like dorsal, white
basally. Caudal dark gray, with
red tinge medially. Ventral
white basally, outer half red and
dark gray terminally.

Two, 118 to 125 mm., Bangkok

Hampala macrolepidota

(Valenciennes).

One, 185 mm., Kratt.

Cyclocheilichthys apogon (Valenciennes)

Depth $2\frac{1}{2}$. No barbels. Each scale
with dark basal spot, forming a
longitudinal row. Front of dors

Analysis of Species

2033

- a. Atherina. Rami of mandible elevated abruptly inside mouth.
- b. Scales 30 to 50 in lateral series.
- c. Anal rays 9 to 14.
- d. Teeth on palate.
- e. Soft D. I, 7 to I, 9; vomer and palatines with teeth.
- f. Vent distinctly before first dorsal, between ventrals or at least between ventral tips.
- g. Each scale on side of body with dark spot; scales 33 to 36 in lateral series; pectoral large, less than 5 in total. endrachtensis.
- g.² Scales without dark spots; pectoral small, more than 5 in total.
- h. First dorsal origin opposite third or fourth scale behind vent.
- i. Scales 35 to 40 in lateral series. duodecimalis.
- i.² Scales 42 to 45 in lateral series. forshali.
- h.² First dorsal origin opposite seventh or eighth scale behind vent; lateral

scales 39 or 40.

valenciennesi.

2034

f.² Vent 1 or 2 scales behind depressed ventral tips or opposite first dorsal origin; lateral scales 40 to 44.

lacunosa.

Q.² Soft D. I, 10 to I, 12; vomerine teeth present; no palatine teeth; vent mostly between depressed ventrals.

j.¹ Lateral scales 37; maxillary reaches $\frac{4}{5}$ to eye.

microstoma.

f.² Lateral scales 40 to 45.

k.¹ Eye 3 in head.

l.¹ Lateral scales 45. bleekeri.

l.² Lateral scales 42. tamarensis.

k.² Eye $2\frac{2}{3}$ to $2\frac{4}{5}$ in head.

m.¹ Lateral scales 45. presbyteroides.

m.² Lateral scales 40. woodwardi.

f.³ Lateral scales 48 or 49; eye $2\frac{3}{4}$ in head; vent behind depressed ventrals.

tsurugae.

d.¹ no teeth in palate.

n.¹ A. I, 9 or 10.

mugiloides.

n.² A. I, 13.

melanostigma.

n.² A. I, 16 to 18.

breviceps.

l.² Scales 73 to 75 in lateral series; vent between ventrals.

dannevigi.

2035

a.² Hepsetia. Rami of mandible not
elevated abruptly inside mouth.

o.¹ Pectoral without dark
blotch..

p.¹ Depth $4\frac{2}{5}$ to 5. pinguis.

p.² Depth $5\frac{1}{8}$. afra.

o.² Pectoral with black
subbasal blotch; depth $5\frac{1}{2}$
to $5\frac{3}{5}$. maculipectoralis..

2036

Atherina endrachtensis Duy and Haemard

Atherina endrachtensis Duy and Haemard,
Voy. Arane, Zool., p. 334, 1825 (type
locality, China Sea; Terre d'Endracht
[Shark's Bay, Endracht's Land,
Western Australia]). — Valenciennes,
Hist. nat. Poiss., vol. 10, p. 456, 1835
(New Guinea). — Günther, Cat. Fish.
Brit. Mus., vol. 3, p. 401, 1861 (copied).

— Macleay, Proc. Linn. Soc. New South
Wales, vol. 5, pt. 2, p. 39, 1881 (on
Valenciennes). — Sauvage, Hist. nat.
Madagascar, Poiss., p. 406, 1891
(reference). — Jordan and Seale,

Bull. Bur. Fisher., vol. 25, p. 216,
1905 (reference).

13486. Basa Reef, Gulf of Boni,
Celebes. December 17, 1909. Length 171 mm.

16231. Cape Kait, Libani Bay, Celebes.
December 29, 1909. Length 154 mm.

18332 and 18337. West of Malibagu
Point, Celebes. November 21, 1909.
Length 175 to 197 mm. [2062.]

13212. Doworra Island. December 2,
1909. Length 169 mm.

13121. Powati Harbor, Makyan Island.
November 28, 1909. Length 195 mm.

13507 and 13509. Gomomo Island,
Pitt Passage. December 3, 1909. Length
125 to 170 mm.

14866. Dodepo Island, Gulf of Tomini,
(Celebes). November 16, 1909. Length 85 mm.

— Kendall and Goldsbrough, Mem.
Mus. Comp. Zool., vol. 26, p. 254, 1911
(Marshall; Trock; Suva; Rangiroa;
Guam).

~~Wasserfische~~

Fische,

~~Muraena~~ Fische,
— Weber, Siboga Exped., vol. 57, p. 136,
1913 (Paternoster Island, Sumbawa,
Menado, Biau).

— Jordan and Hubbs, Stanford Public,
p. 41, 1919 (reference).

— Fowler, Mem. Bishop Mus., vol. 10,
p. 119, 1928 (New Guinea). — McCulloch,
Mem. Austral. Mus., vol. 5,
pt. 1, p. 108, June 29, 1929 (reference).

— Fowler, Mem. Bishop Mus., vol. 11,
no. 5, p. 324, 1931 (reference).

1 example. Taganak Island, off
southern Luzon. January 7, 1908.
Length 144 mm. [1080].

14306. Teomabal Island, vicinity
Golo. September 18, 1909. Length 126 mm.

7124 and 7124. West coast of Palau
Island. November 18, 1908. Length 152 to
198 mm.

21334. Brababahan Island, off Borneo.
December 31, 1909. Length 93 mm.

16425 and 16427. Lunawan and Vi Amil
Islands, vicinity Sibuko Bay, Borneo.
September 27, 1909. Length 157 to 178 mm.

17309. Sipadan Island, vicinity Sibuko
Bay, Borneo. September 28, 1909. Length
175 mm.

18252. Tomahu Island, vicinity of
southern Bouro. December 11, 1909. Length
90 mm.

Atherina cendrachtensis Beaufort,
 Bijdr. Dierk. Amsterdam, vol. 19, p.
 106, 1913 (Majalibit Bay, Waigiu).—

— Weber, Zool. Meded. Mus. Leiden,
 vol. 6, p. 47, 1921 ().

— Weber and Beaufort, Fishes Indo
 Austral. Archip., vol. 4, p. 270, 1922
 (Mias; Paternoster Islands; Sumbawa;
 Menado; Biaru; Ceram; Banda;
 Aru; Waigiu)..

— Duncker and Mohr, Mitteil. Z. Naturh.
 Mus. Hamburg, vol. 42, p. 135, 1926
 (Heard Harbor, Admiralty Islands).

— Whitley, Journ. Pan Pac. Res.
 Inst., vol. 2, no. 1, p. 4, January-
 March 1927 (Fiji).

white lines touching one another on hind caudal edge. Paired fins pale brown or yellowish, usually with narrow dark edges to ventrals.

Zanzibar, Mauritius, Seychelles, India, East Indies, Philippines, Riu Kiu, Melanesia, Micronesia, Polynesia. Boulenger gives the length 240 mm. though none of our specimens so large. Also all have the white oblique bands on the caudal, a character by which the species may be easily recognized.

16363, Balicuatro Island, Biri Channel, east coast Luzon. June 1, 1909. Length 123 mm.

Atherina bimanensis Bleeker, Journ.
Ind. Arch., vol. 2, p. (633) 637, 1848

type locality, Bima, Sumbawa).

— Günther, Cat. Fish. Brit. Mus.,
vol. 3, p. 372, 1860 (reference). —

Jordan and Hubbs, Stanford Public,
p. 41, 1919 (reference).

circuli moderate.

D. IX, 14, I or 15, I, fourth spine $2\frac{4}{5}$ to 4 in total head length, twelfth ray $2\frac{1}{3}$ to $2\frac{3}{5}$; A. III, 9, I, second spine $2\frac{2}{3}$ to $3\frac{1}{8}$, fifth ray 2 to $2\frac{1}{3}$; caudal $1\frac{3}{5}$ to $1\frac{4}{5}$, convexly rounded behind; least depth of caudal peduncle $2\frac{3}{4}$ to $3\frac{1}{4}$; pectoral $1\frac{1}{4}$ to $1\frac{1}{2}$; ventral $1\frac{4}{5}$ to $2\frac{1}{5}$.

In alcohol dark brown above, little paler below or on breast and belly. Iris brown. Dorsals dark brown, mottled with deep gray on soft fin. Anal similar. Caudal largely or over median area dark brown mottled with dark gray, oblique whitish line over upper and lower rays and along upper and lower edges, leaving intermediate brown region paler, none of

Hepsetia regina (Seale)

2040

Atherina regina Seale, Philippine
Journ. Sci., vol. 4, no. 6, p. 496,
pl. 3, fig. 1, November 1909 (type
locality, Culion; Busuanga).

Hepsetia regina Jordan and Hubbs,
Stanford Public., p. 34, 1919
(reference).

and body to caudal base, rays 10;
ventral rays 1, 2, long simple ray,
extends well beyond caudal fin,
bifurcate terminally about $\frac{1}{3}$ its
length with branches equal, also
ray and bifurcations distinctly
articulated.

Color pale brownish with
golden sheen, latter color most
brilliant along lower sides of
head, trunk and tail, especially
about and on long anal fin &
base. Iris pale or whitish.
Light olive tinge over golden of
upper surface of head. Fins all
more or less pale to whitish,
on caudal some very faint median
transverse and rather close set
series of small spots, several on
each ray. Scales on upper surface
of back each more or less tinted
with dull oliveaceous.

2041

Depth $4\frac{2}{5}$ to 5; head $3\frac{1}{3}$ to $3\frac{2}{5}$,
width $1\frac{1}{2}$ to $1\frac{2}{3}$. Snout 4 to $4\frac{1}{3}$
in head from snout tip; eye $2\frac{1}{4}$
to $2\frac{2}{5}$, greatly exceeds snout,
greater than interorbital;
maxillary reaches $\frac{1}{5}$ to $\frac{1}{4}$ in eye,
length $2\frac{2}{5}$ to $2\frac{7}{8}$ in head from
snout tip; interorbital $2\frac{1}{2}$ to
 $2\frac{3}{4}$ in head from snout tip,
low, depressed to little concave
forward. Gill rakers 6 + 19, slender,
lanceolate, little longer than gill
filaments or $2\frac{3}{4}$ in eye.

Scales 33 to 36 in lateral
series to caudal base and 3 to 5
more small ones on latter; 6 or
7 transversely, 15 to 17 predorsal
forward to middle of interorbital.
Scales with 2 basal marginal points;
50 to 60 vertical parallel striae
basally; apical half of scale entire.

$\text{D. IV or V} - \text{I, I, 6, I or I, I, 7, I,}$
 second spine $2 \frac{3}{4}$ to $2 \frac{4}{5}$ in total
 head length, first branched ray
 $1 \frac{7}{8}$ to 2; A. $\text{I, I, 9, I or I, I, 10, I,}$
 first branched ray $1 \frac{2}{3}$ to $1 \frac{3}{4}$;
 caudal $1 \frac{1}{8}$ to $1 \frac{1}{5}$, deeply
 emarginate, lobes pointed;
 least depth of caudal peduncle
 $3 \frac{1}{4}$ to $3 \frac{4}{5}$; pectoral $1 \frac{1}{8}$ to $1 \frac{1}{5}$,
 rays I, 14 ; ventral rays I, 5,
 fin $1 \frac{3}{5}$ to $1 \frac{3}{4}$.

Back and upper surface
 of head brownish. Dark median
 streak down back, continued
 between and behind fins.
 Along side of body 4 parallel
 longitudinal rows of blackish
 spots, one at base of each
 scale exposure. An underlaid
 silvery white band along

2043

uppermost row of blackish spots, it axial, rather ill defined and with obscure leaden edge above. Iris silvery white. Dorsals and caudal grayish. Other fins whitish, dusky or grayish at pectoral base, often upper part of pectoral more or less suffused with dusky gray.

2044
A strongly marked species
with the blackish spots as
longitudinal rows. In most
all other respects it resembles
Atherina duodecimalis.

One example. Balamban, Cebu. ²⁰⁴⁵
April 2, 1908. Length 48 mm.

One example. Bolalo Bay,
Palawan. December 31, 1908. Length
50 mm.

Two example. Bolinao Bay, Luzon.
May 9, 1909. Length 45 to 71 mm.

Six examples. Bongao anchorage.
February 22, 1908. Length 35 to 74
mm.

33 examples. Busuon Harbor,
Burias Island. April 23, 1908.
Length 43 to 100 mm.

Two examples. Cagugao anchorage.
June 9, 1909. Length 48 to 53 mm.

9855. Cagayan de Jolo. January 8,
1909. Length 86 mm.

One example. Camp Overton,
Mindanao. August 15, 1909. Length
47 mm.

15083. Capulaan Bay, Pagbilao
Island. February 24, 1909. Length
35 mm.

Thirteen examples. Cavite,
Luzon. June 11, 1908. Length 48 to
50 mm.

1822, 21769 to 21771. Cebu.
March 20, 1909. Length 90 to 120 mm.

14 examples. Endeavour Strait,
Palawan. December 23, 1909.
Length 25 to 65 mm.

20441. Grande Island reef.
January 8, 1908. Length 52 mm.

20524, 20525. Gujilugan,
Negros. April 2, 1908. Length 75
to 78 mm.

7029. Limbones Cove, Luzon.
January 14, 1908. Length 48 mm.

One example. ~~Lingayen Gulf~~
~~Lingayen Gulf~~ Lingayen Gulf, Luzon.
May 11, 1909. Length 30, 1909.

One example. Olongapo, southern
Luzon. January 7, 1908. Length
46 mm.

2047

Two examples. Panabutan Bay,
Mindanao. February 5, 1908.
Length 44 to 51 mm.

Nineteen examples. Papatag Island,
Tawi Tawi. February 23, 1908. Length
44 to 107 mm.

Three examples. Port Bais, Negros.
March 31, 1908. Length 54 to 79 mm.

Three examples. Port Calton,
Busuanga Island. December 15, 1908.
Length 42 to 59 mm.

Seven examples. Port Calton.
December 16, 1908. Length 39 to 49 mm.

Three examples. Port Dupon,
Leyte. May 6, 1908. Length 53 to 69 mm.

Fifteen examples. Port Galera,
Mindoro. June 8, 1908. Length 35 to
44 mm.

8442, 8443. Port Janelo, Luzon.
July 12, 1908. Length 45 to 72 mm.
Seven examples.

8441, 8444. Port Jamelo.

July 13, 1908. Length 40 to 85 mm.

Fifty examples.

Nine examples. Port Matalvi,

Luzon. November 23, 1908. Length

38 to 50 mm.

One example. Port San Vicente,

Luzon shore. November 13, 1908.

Length 53 mm.

¹⁰⁵
~~One~~ example. Port San Vicente.

November 18, 1908. Length ~~40 to 50 mm.~~

35 to 77 mm.

Twelve examples. Ragay Bay,

Ragay Gulf, Luzon. March 9, 1909.

Length 39 to 60 mm.

Four examples. Ragay Bay.

March 10, 1909. Length 41 to 52 mm.

8548, 8551. San Fernando, Union

Province, Luzon. March 17, 1908.

Length 57 to 70 mm.

16 examples. San Miguel Harbor,

Ticao Island. April 21, 1908.

Length 40 to 94 mm.

23 examples. Santa Cruz Island, Marinduque. April 24, 1908. Length 40 to 84 mm.

18 examples. San Vicente Harbor, Luzon shore. November 13, 1908. Length 32 to 53 mm.

19429. Sorogon market, March 12, 1909. Length 63 mm.

5461, 8325, ~~8325~~ 8329. Subig Bay, Luzon. January 7, 1908. Length 49 to 54 mm.

7049. Taal Lake, east side of island. December 27, 1907. Length 61 mm.

Eight examples. Tacloban anchorage. April 12, 1908. Length 49 to 54 mm. Female with bunch of about 100 eggs attached.

19732. Tacloban market. July 25, 1909. Length 74 mm.

143 examples. Tara Island. December 15, 1908. Length 37 to 72 mm.

2050

Thirteen examples. Ulugan Bay
near mouth of Baheli River,
Palawan. December 28, 1908.
Length 35 to 62 mm.

15441. Ulugan Bay, Rita
Island, Palawan. December 29,
1908. Length 58 mm.

Ten examples. Varadero Harbor,
Mindoro. July 22, 1908. Length
25 to 50 mm.

19988. Sandakan Bay, Borneo.
March 2, 1908. Length 83 mm.

One example. Sandakan Bay.
March 1, 1908. Length 74 mm.

2057

Atherina duodecimalis Valenciennes

Atherina duodecimalis Valenciennes,
Hist. Nat. Poiss., vol. 10, p. 458, 1835
(type locality, Ceylon). — Bleeker,
Nat. Tijds. Ned. Indië, vol. 2, p. (472)
485, 1851 (Rio); vol. 3, p. 445, 1852
(Banka); vol. 4, p. 596, 1853
(Halmaheira); Verh. Batavia. Genoot.
(hal. Ich. Bengal), vol. 25, p. 48, 1853
(reference); Nat. Tijds. Ned. Indië,
vol. 6, p. 90, 1854 (Banda, heira), p.
458 (Amboina); vol. 7, p. 164, 1854
(Kutoena); p. 361 (Batjan); vol. 8, p.
296, 1855 (Ternate); vol. 9, p. 114, 1855
(Sumbawa); vol. 10, p. 347, 1856
(Rio, Bintang), p. 360 (Ternate), p.

narrow band of fine teeth on ventral and each palatine; interorbital 6 to $8\frac{1}{2}$, nearly level; hind preopercle edge minutely serrated, obsolete or entire with age; upper opercle spine in advance, median closer to lower.

Gill rakers 6 + 14, obtusely lanceolate, slightly less than gill filaments or $2\frac{1}{4}$ in eye; 5 upper or lower on each branch rudimentary.

Scales 70 to 77 + 11 to 15 in lateral line, 13 to 16 above, 25 to 27 below; pores 43 to 49 + 3 or 4; predorsal 47 to 50 scales; 24 to 26 rows across cheek; maxillary naked in young, with age terminal patch of fine scales $\frac{1}{4}$ maxillary expansion; fins

p. 467 (Separoea); vol. 11, p. 417, 1856
 Muntok, Banca; vol. 12, p. 113,
 1856 (Ternate); Act. Soc. Sci. Ind.
 Néerl., vol. 1, no. 3, p. 5, 1856 (Manado);
 vol. 1, no. 5, p. 6, 1856 (Amboina);
 vol. 2, no. 7, p. 5, 1857 (Amboina);
 Nat. Tijds. Ned. Indië, vol. 13, p.
 284, 1857 (Tjiroutjup, Biliton), p.
 384 (Batjan), p. 388 (Timor koepang);
 vol. 15, p. 201, 1858 (Goram), p. 242
 (Singapore); vol. 17, p. 143, 1858-59
 (Boeleling, Bali); vol. 18, p. 354, 1859
 (Bauvean), p. 361 (Blinjie, Banca);
 Act. Soc. Sci. Ind. Néerl., vol. 6, no. 2,
 p. 4, 1859 (Doreh, New Guinea); Nat.
 Tijds. Ned. Indië, vol. 20, p. ¹⁴¹138, ⁵⁹1866
 60 (Badjau, Boni), p. 206 (Boeleling);

Depth $2\frac{2}{3}$ to $2\frac{3}{4}$; head $2\frac{2}{5}$ to $2\frac{4}{5}$,
width $2\frac{1}{2}$ to $2\frac{7}{8}$. Snout $4\frac{1}{4}$ to $4\frac{7}{8}$
in head from snout tip; eye $4\frac{1}{4}$ to $5\frac{1}{2}$,
greater than snout in young to $1\frac{2}{5}$
with age, greater than interorbital
in young, to equal with age; maxillary
extends beyond eye, at least half an
eye diameter with age, expansion $1\frac{1}{5}$ to
 $1\frac{1}{3}$ in eye, length 2 to $2\frac{1}{10}$ in head
from snout tip; teeth in bands in
jaws, slightly enlarged outer erect
upper row; some long inner front
upper depressible teeth; lower laterals
in 4 rows narrowing to 2 rows
posteriorly and entire inner row long
and depressible; pair of small canines
in front of each jaw, often duplicated;

vol. 21, p. 138, 1860 (Muntok, Banca);
 vol. 22, p. 65, 1860 (Benculen), p. 108
 (Muntok), p. 249 (Timor); Act. Soc.
 Sci. Ind. Néerl., vol. 8 (Sumatra⁹),
 p. 2, 1860 (Benculen). — Günther,
 Cat. Fish. Brit. Mus., vol. 3, p.
 400, 1861 (copied). — ^{Red. Tyds. Dierk., vol. 1, p. 254, 1863 (Wahni)} Bleeker, Verslag.
 Akad. Wet. Amsterdam, vol. 16, p.
 361, 1864 (Saparoua); ser. 2, vol. 2,
 p. 293, 1868 (Rio). — Day, Fishes of
 India, pt. 2, p. 345, 1876; Fauna
 British India, Fishes, vol. 2, p. 339,
 1889.

— Sauvage, Hist. Nat. Madagascar,
 Poiss., p. 406, 1891 (reference). —

Bean and Weed, Proc. U. S. Nat. Mus.,
 vol. 42, p. 516, 1912 (Batavia).

Epinephelus gimama Bleeker, Atlas
Ichth. Ind. Néerl., vol. 7, 1873-76,
pl. (10) 288, fig. 2.

Serranus spilurus Valenciennes, Hist.
Nat. Poiss., vol. 9, 1833, p. 433. Mauritius.
Serranus homfrayi Day, Proc. Zool.
Soc. London, 1870, p. 678. Port Blair,
Andaman Islands.

— Beaufort, Bijdr. Dierk. Amsterdam,
pt. 19, p. 105, 1913 (Magalibit Bay,
Waigiu). — Weber, Siboga Exped.,
vol. 57, Fische, p. 136, 1913 (Lombok;
Aru); Zool. Med. Mus. Leiden, vol. 6,
p. 47, 1921.

— Weber and Beaufort, Fish. Indo
Austral. Archip., vol. 4, p. 275, 1922
(Pulu Weh; Sematur; Kias; Kota Baru;
Lumba; Flores; Adonare; Makassar;
Buton; south Timor; Ambon; Ceram;
Waigiu; Aru). — Demcker and Mohr,
Mitteil. Naturh. Mus. Hamburg,
vol. 42, p. 135, 1926 (Papitalai,
Admiralty Islands; Linden Harbor,
New Pomerania).

Sauvage, Hist. Nat. Madagascar, Poiss.,
1891, p. 57, pl. 10, fig. 1. — Boulenger,
Cat. Fishes Brit. Mus., vol. 1, 1895, p. 195
(Amboina, Louisiades, Tahiti). —

Steindachner, Abhandl. Senckenberg.

Naturf. Gesell., vol. 25, 1900, p. 414

(Batjan). — Weber, Siboga Exped., vol.
57, ^{Fishes} 25, 1913, p. 201 (Banda Island, Feer,
Hoch Kei).

Cephalopholis leopardus Jordan and
Richardson, Bull. Bur. Fisher., vol. 27,
1907 (1908), p. 256 (Calayan).

Serranus zanana Valenciennes, Hist.
Nat. Poiss., vol. 2, 1828, p. 339. no locality,
"rapportée par Commerson". — Günther,

Cat. Fishes Brit. Mus., vol. 1, 1859, p. 123
(Amboyna). — Meyer, Ann. Soc. Españ.

Hist. Nat. Madrid, vol. 14, 1885, p. 9
(North Celebes).

— Fowler, Proc. Acad. Nat. Sci.
Philadelphia, ^{vol. 71,} 1927, p. 263 (Santa
Maria; Orión; Bacon). — Fowler
and Bean, Proc. U. S. Nat. Mus.,
vol. 71, art. 10, p. 4, 1927 (Bankoelon,
Sumatra). — Fowler, Mem. Bishop
Mus., vol. 10, p. 119, 1928 (compiled);
Journ. Bombay Nat. Hist. Soc., vol. 32,
no. 4, p. 706, pl. 2, May 31, 1928
(Ceylon).

Atherina duodecimnales Bleeker, Act.
Soc. Sci. Ind. Néerl., vol. 3, no. 9, p. 4,
1857-58 (Trussan Sumatra; error).

Atherina forskalii (not Rüppell)
Evermann and Seale, Bull. Bur.
Fishes, vol. 26, p. 59, 1906 (Bacon).

Cephalopholis leopardus (Lacépède).

Labrus leopardus Lacépède, Hist. Nat. Poiss., vol. 3, 1802, pp. 450, 518, pl. 30, fig. 1.

Great Equatorial Ocean [Indo Pacific].

Serranus leopardus Valenciennes, Hist.

Nat. Poiss., vol. 2, 1827, p. 336 (on Lacépède).

— Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 123 (copied); Journ. Mus. Godeffroy, vol. 1, pt. 1, 1873, p. 4, pl. 3, fig. B (East Africa, Seychelles, Samoa, East Indies, Society Islands). — Day, Fishes of India, pt. 1, 1875, p. 25, pl. 6, fig. 4; Fauna Brit. India, vol. 1, 1889, p. 457. — Peters, Monatsb. Akad. Wiss. Berlin, 1876, p. 435 (Mauritius).

Plectropoma leoparda Richardson, Ichth.

China Jap., 1846, p. 230 (copied).

Epinephelus leopardus Bleeker, Atlas

Ichth. Ind. Néerl., vol. 7, 1873-76, p. 44,

pl. (10) 288, fig. 2 (Sumatra, Sanger,

Ternate, Batjan, Flores, Ambina). —

~~Hepsetia lineata Günther~~

Litharina lineata Günther, Ann.

Mag. Nat. Hist., ser. 4, vol. 10, p.
398, 1872 (type locality, Cebu;
Amboyna).

— Elera, Cat. Fauna Filipinas, vol. 1,
p. 536, 1895 (Cebu).

Hepsetia lineata Jordan and Hubbs,
Stanford Public., p. 34, 1919
(reference).

on top of head, predorsal region,
~~and breast and belly~~. Lateral line
complete, arched to Tail, then
midway along side to caudal.

Dorsal spines graduated to fifth
which longest, little lower than
long soft fin. Anal with 2 spines,
second moderate. Caudal cuneate.

Paired fins moderate. Type Johnius
melanobrachium, new species.

Distinguished chiefly by the finely
spiculated scales on top of head
and predorsal and belly.

(Asper rough + Corvina.)

Johnius melanobrachium, new
species. Figure 122.

Depth $3\frac{2}{5}$; head $3\frac{2}{5}$, width
 $\frac{4}{5}$. Snout $4\frac{1}{3}$ in head; eye $5\frac{3}{4}$,
 $\frac{1}{2}$ in snout, 2 in interorbital;
maxillary reaches half way in eye,
length from snout tip $2\frac{1}{2}$ in head;
teeth in villiform bands in jaws,
upper outer row enlarged, lower

2062

50 examples. Atulayan Bay,
Luzon. June 17, 1909. Length 39 to
64 mm.

One example. Baganga River,
Mindanao. May 13, 1908. Length
35 mm.

20260, 20261. Baganga Bay.
May 15, 1908. Length 107 to 113 mm.

Three examples. Balamban, Cebu.
April 2, 1908. Length 30 to 35 mm.

Two examples. Bisueay Island,
near Cuyo. April 9, 1909. Length
33 to 74 mm.

26 examples. Bolinao Bay, Luzon.
May 10, 1909. Length 28 to 64 mm.

One example. Bongao anchorage,
Sulu Archipelago. February 22, 1908.
Length 20 mm.

44 examples. Busin Harbor,
Burias Islands. April 22, 1908.
Length 35 to 93 mm.

One example. Busin Harbor. ²⁰⁶³

March 8, 1909. Length 33 mm.

^{Three}
~~One~~ examples. Cabugao Bay,
Catanduanes Island, east coast
Luzon. June 9, 1909. Length 25^{to 48} mm.

9844. Cagayan de Zolo. January
8, 1909. Length 25 to 67 mm.

Eighteen examples.

Five examples. Caldera Bay,
February 16, 1908. Length 18 to 22 mm.
Very poorly preserved.

Eight examples. Camp Overton,
Mindanao. August 15, 1909. Length
21 to 25 mm.

Thirteen examples. Capunuypugan,
Mindanao. May 9, 1909. Length 31 to
75 mm.

Eight examples. Catangan Bay,
Masbate. April 18, 1908. Length 25
to 49 mm.

One example. Cavite Market, Luzon.
June 26, 1908. Length 50 mm.

24 examples. Cebu. March 13, 1909.
Length 20 to 78 mm. With spawn.

21821. Cebu. March 20, 1909.
Length 79 mm.

[1827.] Cebu. August 28, 1909.
Six examples. Length 72 to 100 mm.
One example. Chase Head, beach
at village near by, Endeavour Strait,
Palawan. December 22, 1908. Length
33 mm. Very poorly preserved.

Eleven examples. Cuyo Island.
April 9, 1909. Length 20 to 52 mm.

↑ 6528. Daet Point, Camiguin Pass, Luzon.
June 15, 1909. Length 75 mm.

Length 21 to 10 mm.

38 examples. East side Tagbalaran
Strait, Bohol Island. April 9, 1908.
Length 25 to 90 mm. Scales $37+3$.
Pectoral $5\frac{2}{3}$ in total.

Three examples. Endeavour Strait,
Malampaya Sound, Palawan. December
23, 1908. Length 18 to 30 mm.

24 examples. Cebu. March 13, 1909.
Length 20 to 78 mm. With spawn.

21821. Cebu. March 20, 1909.
Length 79 mm.

[1827.] Cebu. August 28, 1909.
Six examples. Length 72 to 100 mm.
One example. Chase Head, beach
at village near by, Endeavour Strait,
Palawan. December 22, 1908. Length
33 mm. Very poorly preserved.

Eleven examples. Cuyo Island.
April 9, 1909. Length 20 to 52 mm.

50 examples. Dos Amigos Port,
(Blockawi Tawi. February 18, 1908.
Length 21 to 78 mm.

38 examples. East side Tagbalaran
Strait, Bohol Island. April 9, 1908.
Length 25 to 90 mm. Scales 37 + 3.
Pectoral $5\frac{2}{3}$ in total.

Three examples. Endeavour Strait,
Malampaya Sound, Palawan. December
23, 1908. Length 18 to 30 mm.

Plectropomus maculatus (Bloch)

April 9, 1950
examined
length 21.5

39 examples. Gujuluhan Island,
Negros. April 2, 1908. Length 31 to
88 mm.

One example. Iloilo River, shore above
Iloilo, Panay. June 2, 1908. Length 45
mm.

Two examples. Inamucan Bay,
Mindanao. June 12, 1909. Length 63 to
74 mm.

One example. Inamucan Bay.
August 9, 1909. Length 33 mm.
20092. Iwahig and tributaries,
Puerta Princesa, Palawan. April 4,
1909. Length 83 mm.

Four examples. Jolo. February 7, 1908.
Length 63 to 91 mm.

Seven examples. Jolo. February 8, 1908.
Length 40 to 48 mm.

Two examples. Jolo anchorage, Jolo.
March 5, 1908. Length 44 to 55 mm.

Three examples. Ligo Point,
Balayan Bay, Verde Island Passage.
January 18, 1908. Length 17 to 31 mm. Very
poorly preserved.

One example. Lucena anchorage,
Tayabas Light, Marinduque.
February 24, 1909. Length 36 mm.

Few examples. Maculabo
Island. June 13, 1909. Length 30
to 70 mm.

One example. Malabang anchorage,
southern Mindanao. May 24, 1908.
Length 41 mm.

40 examples. Malcochin Harbor,
Linapacan Island. December 19, 1908.
Length 28 to 75 mm.

Seven examples. Manila Bay,
Luzon. December 7, 1907. Length 38 to
68 mm.

Five examples. Manila Bay.
December 9, 1907. Length 51 to 58 mm.

Eight examples. Manila Bay.
December 15, 1907. Length 52 to 63 mm.

Seven examples. Manila Harbor.
March 16, 1908. Length 62 to 74 mm.

Elguen 2067
~~Twelve~~ examples. Mansalay,
Mindoro. June 3, 1908. Length 27 to
65 mm.

One example. Mansalay. June
4, 1908. Length 42 mm.

174 examples. Mantaguin Bay,
Palawan. April 1, 1909. Length
25 to 68 mm.

One example. Maribojoc Bay,
Maribojoc, Bohol. May 26, 1909.
Length 33 mm.

Three examples. Masamat Bay,
Ininalasag Island, east coast Luzon.
June 11, 1909. Length 54 to 77 mm.

Two examples. Mati, Puyada
Bay, Mindanao. May 15, 1908.
Length 37 to 46 mm.

131 examples. Matnog Bay,
Luzon. May 31, 1909. Length 30 to 57 mm.

21224. Mindanao River below
mouth, Cotabato, Mindanao. May 20,
1908. Length 75 mm.

2068

Four examples. Habatas Point,
Samar. July 24, 1909. Length 59 to
65 mm.

26 examples. Nasugbu Bay, Luzon.
January 1908. Length 13 to 15 mm.
Poorly preserved.

One example. Kato anchorage,
Laguna Gulf, Luzon. June 18, 1909.
Length 28 mm.

One example. Hanuean River,
Camp Overton, Mindanao. August 6,
1909. Length 42 mm.

Nineteen examples. Panabutan
Bay, Mindanao. February 5, 1908.
Length 36 to 88 mm.

One example. Panabutan Bay.
February 8, 1908. Length 41 mm.

Ten examples. Pandanon Island.
March 4, 1909. Length 21 to 41 mm.

Three examples. Pandanon Island.
March 23, 1909. Length 41 to 56 mm.

One example. Pandanon Island.
March 24, 1909. Length 38 mm.

76 examples. Parang, Mindanao.
May 23, 1908. Length 49 to 75 mm.
Scales 36 + 4. Pectoral $5\frac{1}{2}$ in
total length. Three horizontal
rows of dark dots, upper most
on lateral line and largest, lowest
row shortest.

24 examples. Pasacao, Ragay Gulf,
Luzon. May 8, 1909. Length 30 to 31
mm.

Sixteen examples. Port Bais
anchorage, Tanon Strait, Negros.
March 31, 1908. Length 59 to 80 mm.

121 examples. Port Calton,
Busuanga Island. December 15, 1908.
Length 39 to 93 mm.

125 examples. Port Dupon, Leyte.
May 6, 1908. Length 18 to 26 mm.

26 examples. Port Dupon. March
17, 1909. Length 24 to 48 mm.

92 examples. Port Galera, Mindoro.
 June 9, 1908. Length 38 to 67 mm.
 Scales $34 + 3$. Pectoral 5 in total.

8445. Port Jamelo, Luzon.
 July 13, 1908. Length 32 to 95 mm
 158 examples.

Seventeen examples. Port Langcan,
 Dumaran Island, vicinity of
 eastern Palawan. April 7, 1909.
 Length 25 to 75 mm.

70 examples. Port Matalvi,
 Luzon. November 22, 1908. Length
~~13~~ to 75 mm.

Seven examples. Port San Pio
 Quinto, Camiguin Island. November
 11, 1908. Length 45 to 65 mm.

Sixteen examples. Port San Vicente,
 northern Luzon. November 18, 1908.
 Length 35 to 110 mm.

31 examples. Port Usan, west of
 Pinas Island. December 17, 1908.
 Length 32 to 68 mm. Scales $36 + 3$.
 Pectoral $6\frac{1}{3}$ in total length.

2071

Four examples. Putoc River,
back water ponds, Mindanao.

January 30, 1909. Length 71 to 92 mm.

57 examples. Ragay Bay,
Ragay Gulf, Luzon. March 10, 1909.
Length 18 to 85 mm.

One example. Romblon. March
25, 1908. Length 28 mm.

Twenty examples. Romblon.
March 26, 1908. Length 32 to 75 mm.

Three examples. Sablayan Bay,
Mindoro. December 12, 1908. Length
22 to 51 mm.

8549, 8550, 8552. San Fernando,
Union Province, Luzon. March 17, 1908.
Length 55 to 78 mm. Four examples.

Seventeen examples. San Miguel,
Ticao Island. April 2, 1908.
Length 34 to 77 mm.

Two examples. San Miguel.
April 21, 1908. Length 23 to 40 mm.

2072

Two examples. San Roque, Cavite,
Luzon. July 28, 1908. Length 53 to
56 mm.

One example. Santa Maria,
Siquijor Island. August 11, 1909.
Length 47 mm.

35 examples. Sorsogon Bay
entrance. March 11, 1909. Length
60 to 80 mm.

23 examples. Subig Bay, Luzon.
January 7, 1908. Length 38 to 61 mm.

47 examples. Surigao, Olingapo
Bay, Mindanao. January 7, 1908.
Length 30 to 78 mm.

One example. Surigao. May 8,
1908. Length 47 mm.

Four examples. Taal anchorage.
February 20, 1909. Length 35 to 39 mm.

Eighteen examples. Taal Lake,
east end of island. December 26,
1907. Length 52 to 64 mm.

D. 5562. Tãnum Point (Jolo),
 N. 87° E., 17.2 miles (lat. 5° 54' 20"
 N., long. 121° 13' 12" E.), Jolo Island
 and vicinity. ~~November 4, 1908.~~

~~Length 20 mm.~~ September 20, 1909.

Length 21 to 38 mm. Three examples.

Four examples. Tara Island
 anchorage. December 14, 1908.

Length 30 to 74 mm.

41 examples. Tataan, Simaluc
 Island. February 19, 1908. Length
 65 to 78 mm. Scales 36 + 4. Pectoral
 6½ in total fish.

Two examples. Tataan Anchorage.
 February 21, 1908. Length 65 to 69 mm.
 Scales 37. Pectoral 5½, without
 dark spot.

37 examples. Tataan Passage.

February 20, 1908. Length 19 to 74 mm.

10 examples. Tilig, Lubang Island.

July 14, 1908. Length 20 to 21 mm. In
 poor condition.

Four examples. Tomahu Island.
December 11, 1909. Length 35 to 78
mm.

~~One~~ ^{Seven} examples. Tumindao Island
anchorage. February 25, 1908.
Length ^{19 to} 73 mm.

One example. Tumindao Island
anchorage. February 26, 1908.
Length 29 mm.

37 examples. Varadero Harbor,
Mindoro. July 22, 1908. Length 18 to
45 mm.

Eleven examples. Varadero Harbor.
July 12, 1908. Length 17 to 20 mm.

39 examples. Varadero Bay.
July 23, 1908. Length 33 to 88 mm.

One example. Varadero Bay.
July 25, 1908. Length 35 mm.

One example. D. 5312. China Sea,
vicinity Hong Kong (lat. $21^{\circ}30'N.$,
long. $116^{\circ}32'E.$). November 4,
1908. Length 2.0 mm.

Nine examples. Gomomo Island,
Pitt Passage. December 3, 1909.
Length 5.4 to 7.8 mm.

²⁰²²⁴
20223, 1 Sandakan Bay, Borneo.
March 2, 1908. Length ⁵³~~68~~ to 83 mm.
Three examples.

2076
A. n. S. P., one example. ~~From~~ Ceylon.
Prof. F. Hallberg. Length 70 mm.

Apogon kiusianus (Döderlein)
Steindachner and Döderlein, Denkschr.

Abad. Wiss. Wien, vol. 47, 1883, p. 2.

Kagoshima.

Apogon spilargus Regan, Journ. Bombay
Nat. Hist. Soc., vol. 16, no. 2, 1905, p.

321, pl. 3 (c), fig. 5. Karachi.

Amia jenkinsi Evermann and Seale,
Bull. Bur. Fisher., vol. 26, 1906 (1907),

p. 73, fig. 9. Buluan.

Amia jenkinsi Fowler, Copeia, no. 58,
June 18, 1918, p. 63 (Philippines).

2057

Atherina forskalii (not Rüppell)
Evermann and Seale, Bull. Bur.
Fisher, vol. 26, p. 59, 1906 (1907)
(Bulan; Bacon).

Atherina lacunosa (not Schneider)
Jordan and Richardson, Bull.
Bur. Fisher, vol. 27, p. 243, 1907
(Iloilo).

Atherina balabacensis Seale,
Philippine Journ. Sci., vol. 4, no. 6,
p. 498, pl. 3, fig. 2, November 1909
(type locality, Balabac; Samar;
Cebu; Siquijor; Cagayan,
Mindanao Island; Puerto
Princesa; Culion; Soinal).

^{l.c.} Subgenus Johnius ^{spt. no. 1, capo} Bloch ^{l.c.}

Johnius belengeri (Cuvier)

One, 150 mm., Bangkok.

Johnius siamensis Hora

One, 78 mm., Bangkok. Maxillary
little shorter than shown in Hora's
figure.

^{spt. ant. capo} Aspericorvina, ^{s.c.} new subgenus.

Body elongately ovoid, well
compressed. Head moderate, compressed.
Snout obtuse. Eye small, center
before first third in head. Mouth
inferior. Maxillary reaches below
eye. Large pore each side of
mandibular symphysis. Teeth
in villiform bands in jaws, some
of upper little enlarged. Preopercle,
subopercle and interopercle with
denticulate edges. Interorbital
broad. Gill rakers small, few.

Depth $5\frac{2}{5}$; head $3\frac{3}{4}$, width $1\frac{3}{4}$.

Snout $3\frac{4}{5}$ in head from snout tip; eye $2\frac{1}{2}$, greater than snout or interorbital; maxillary reaches $\frac{1}{5}$ in eye, length $2\frac{2}{3}$ in head; teeth small, conic, in bands in jaws, on vomer and palatines; mandibular rami moderately elevated inside mouth; interorbital broadly concave, length $2\frac{1}{2}$ in head. Gill rakers $5 + 21$, lanceolate, slender, $2\frac{2}{3}$ in eye. ~~Scales 38 from~~

Scales 38 from above gill opening to 2 caudal base and 4 more on latter; 7 transversely, 16 predorsal, single row on cheeks. Large scale below pectoral base nearly large as eye. Scales with

to whitish, front margin of spinous
dorsal and base of soft dorsal with
blackish band.

Kurachi, Philippines, Japan.

3 basal marginal points; ~~and~~ 30
basal ~~basal~~, vertical, parallel
striae; apical region smooth,
with 18 small, inconspicuous,
marginal lobes.

D. V — I, 10, I, second spine
 $2\frac{1}{3}$ in total head length, first
branched ray $1\frac{3}{5}$, spine of soft
fin short or $\frac{1}{3}$ of first ray;
A. I, 12, first branched ray
 $1\frac{3}{5}$, spine $\frac{1}{4}$ its length; caudal
equals head, well forked, lower
lobe little longer; least depth
of caudal peduncle $3\frac{1}{8}$; pectoral
 $1\frac{1}{6}$; ventral $1\frac{3}{4}$. Vent at first $\frac{2}{5}$
of depressed ventral, 5 scales before spinous base.

Uniformly pale brownish,
with more or less whitish or
silvery. Top of head, end of
mandible and snout dusted.

denticles, with 2 to 4 transverse series of basal elements; ~~and~~ circuli fine.

D. VIII - I, 9, I, fourth spine $2\frac{1}{2}$ to $2\frac{3}{5}$ in total head length, first ray $1\frac{7}{8}$ to 2; A. II, 8, I, second spine 4 to $4\frac{1}{5}$, first ray $2\frac{1}{8}$ to $2\frac{1}{5}$; caudal $1\frac{2}{5}$ to $1\frac{1}{3}$, moderately emarginate behind; least depth of caudal peduncle 3; pectoral $1\frac{7}{8}$ to 2; ventral 2 to $2\frac{1}{8}$.

Back and upper surface brown, sides and below paler and with slight silvered tinge. Iris whitish, with slight brownish tinge above. Dusky brown bar from mandible tip along side of snout to eye. Small dusky brown spot, much less than pupil, each side of occiput. Round blackish blotch medianly at caudal base, large as pupil. Fins all pale

with dusky brown. Patch of
dusky dots on middle of
opercle. Each scale of back
above with submarginal arc of
dusky brown dots. Narrow
band of dusky dots along
scales at anal base. Gray
band from pectoral axil to
caudal base medially, little
less in width than pupil at
greatest expansion, which
opposite soft dorsal and anal.
Fins all pale, with arc of dusky
dots at pectoral base.

Depth $2\frac{7}{8}$ to 3; head $2\frac{1}{3}$ to $2\frac{2}{5}$, width $2\frac{1}{4}$ to $2\frac{1}{3}$. Snout $4\frac{1}{8}$ to $4\frac{1}{5}$ in head from snout tip; eye 3 to $3\frac{2}{5}$, greater than snout or interorbital; maxillary reaches opposite eye center, expansion $2\frac{1}{4}$ to $2\frac{2}{5}$ in eye, length 2 to $2\frac{1}{8}$ in head; narrow bands of villiform teeth in jaws on vomer and palatines; interorbital $4\frac{1}{3}$ to $4\frac{1}{2}$ in head, nearly level; preopercle ridge and edge finely denticulate; preorbital entire. Gill rakers $7+18$, lanceolate, $2\frac{1}{3}$ in eye, much longer than gill filaments.

Scales 23 or 24 in lateral line to caudal base and 3 or 4 more on latter, 2 or 3 above, 5 or 6 below, 3 predorsal, 2 rows on cheek to preopercle ridge. Tubes in lateral line simple, rather large, with small crimped basal scale to each. Scales with 6 to 9 basal radiating striae, 65 to 87 apical

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A species known chiefly by its combination of characters. It has a rather deep compressed body. Vent before tips of depressed ventrals and variably one to five scales in advance of the spinous dorsal origin. Scales always less than 40 to caudal base. Pectoral variable, large, about 5 or more times in to total length of fish. Specimens of Atherina endrachtensis, especially if faded out, are very similar and then about the only character for distinction is the somewhat variably smaller pectoral.

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Atherina forskalii Rüppell

Atherina forskalii Rüppell, Neue
Wirbelth. Fische, p. 132, pl. 33, fig. 1,
1835 type locality, Red Sea, ---

— Gordon, Madras Journ. Lit. Sci.,
1851, p. 140. — Günther, Cat. Fish.
Brit. Mus., vol. 3, p. 377, 1861 (Red
Sea).

— Day, Fishes of Malabar, p. 135, 1865.
— Martens, Verh. zool. bot. Ges. Wien,
vol. 16, p. 379, 1866 (Koser).

— Day, Fishes of India, pt. 2, p. 345,
pl. 71, fig. 4, 1876.

— Macleay, Proc. Linn. Soc. New South
Wales, vol. 7, p. 362, 1882 (New Guinea).
— Klunzinger, Fische Roth. Meer., p.
130, pl. 11, figs. 3-a, 1884.

age; opercular spines 3, upper most advanced and lower nearer median. Gill rakers 8 + 15, lanceolate, robust, equal gill filaments or $2\frac{1}{4}$ in eye; 6 above and 5 below rudimentary.

Scales 90 to 93 in lateral line to caudal base and 10 to 15 more on latter; tubes 54 to 56 in lateral line to caudal base and 5 or 6 more on latter; 17 or 18 scales above lateral line, 28 to 30 below, 53 to 66 predorsal forward to snout end, 25 to 27 rows obliquely across cheek to preopercle edge; scales on head and body anteriorly with fine auxiliary basal scales, little distinct on hind half of body; upper half of maxillary expansion finely scaly, with 16 to 18 transverse rows.

Scales with 7 or 8 basal radiating striae; 36 to 44 apical denticles,

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— Day, Fauna British India, Fishes,
vol. 2, p. 338, fig. 113, 1889.

— Sauvage, Hist. nat. Madagascar,
Pois., p. 522, 1891 (reference). —
Duncker, Mitteil. Naturh. Mus.
Hamburg, vol. 21, p. 165, 1903 (1904)
(compiled). — Evermann and Seale,
Bull. Bur. Fisher., vol. 26, p. 59,
1906 (1907) (Bulan; Bacon). —
Seale, Philippine Journ. Sci., vol. 5,
no. 4, p. 268, 1910 (Sandakan); vol.
9, p. 60, 1914 (Hong Kong). — Jordan
and Hubbs, Stanford Public., p. 40,
1919 (Bombay).

Depth $2\frac{7}{8}$ to $3\frac{1}{5}$; head $2\frac{1}{2}$ to $2\frac{3}{4}$, width $1\frac{7}{8}$ to $2\frac{2}{5}$. Snout 4 to $4\frac{2}{5}$ in head from snout tip; eye $4\frac{1}{3}$ to 6, 1 to $1\frac{3}{5}$ in snout, subequal with interorbital; maxillary extends beyond eye, about half eye diameter with age, expansion 1 to $1\frac{1}{8}$ in eye, length $1\frac{4}{5}$ to 2 in head from snout tip; teeth fine, conic, with pair of upper, wide set, front canines, often double and inner rows depressible with anterior longer; lower teeth similar, only inner longer, hinged, with 3 or 4 rows along sides of jaws, pair of front canines small and closer than upper; bands of fine teeth on vomer and palatines, none on tongue; nostrils about equal; interorbital $5\frac{3}{4}$ to 6, slightly convex; preopercle edge feebly serrate, serrae obsolete with

— Fowler, Mem. Bishop Mus., vol. 10,
p. 119, 1928 (compiled; Proc. Acad.
Nat. Sci. Philadelphia, 1929, p. 603
[Hong Kong]). — Borodin, Bull.
Vanderbilt Marine Mus., vol. 1, art. 2,
p. 49, 1930 (Hulan, Red Sea; Ponape,
Caroline).

Zanzibar, 1866, p. 3, pl. 3, fig. 1.

Cephalopholis sonnerati Snyder, Proc.

U. S. Nat. Mus., vol. 42, 1912, p. 498

(Okinawa).

Epinephelus miltostigma Bleeker,

Verh. Kon. Akad. Wet. Amsterdam, vol.

14, no. 2, 1874, p. 43. Amboina; Atlas

Ichth. Ind. Néerl., vol. 7, 1873-76, p. 37

(Amboina); vol. 8, 1876-77, pl. (52) 330, fig.

5.

Epinephelus playfairi Bleeker, Verh.

Kon. Akad. Wet. Amsterdam, vol. 18, no. 3,

1879, p. 3. Mauritius.

Aetherina forskalei Cantor, Journ. Asiatic
 Soc. Bengal, vol. 18, pt. 2, p. 1085, 1847
 (Sea of Pinang). — Jordan and Seale,
 Bull. Bur. Fisher., vol. 26, p. 216,
 1905 (1906) (reference). — Weber,

Siboga Exped., vol. 57, Fische, p. 134,
 1913 (Paternoster Island, Kijor,
 Obi Major, Tau, Gisser, Buton
 Strait, Banda, Kai Island). —

Jordan and Hubbs, Ann. Carnegie
 Mus., vol. 11, nos. 3-4, p. 462, pl. 46,
 November 5, 1917 (Port Said, Egypt). —

Jordan and Starks, Ann. Carnegie
 Mus., vol. 11, nos. 3-4, p. 439, November
 5, 1917 (Ceylon).

— Pellegrin, Annuaire Mus. Zool.
 Reg. Univ. Napoli, new ser., vol. 3,
 no. 27, p. 7, July 11, 1912 (Erythrae).

Cephalopholis urodelus Seale and Bean,
 Proc. U. S. Nat. Mus., vol. 33, 1907, p. 243

(Zamboanga). — Snyder, Proc. U. S. Nat.
 Mus., vol. 42, 1913, p. 498 (Okinawa).

Bodianus miniatus (part) Schneider, Syst.
 Ichth. Bloch, 1801, p. 333.

Serranus erythraeus Valenciennes, Hist.
 Nat. Poiss., vol. 6, 1830, p. 516. Mauritius.

— Günther, Cat. Fishes Brit. Mus., vol. 1,
 1859, p. 116 (copied). — Jatzow and Lenz,
 Abhandl. Senckenberg. ^{Naturf.} Gesell., vol. 21, 1884,
 p. 498 (Uldava).

Serranus erythraeus Meyer, Ann. Soc.
 Españ. Hist. Nat. Madrid, vol. 14, 1885,
 p. 9 (Korda, Mysore).

Epinephelus erythraeus Sauvage, Hist. Nat.
 Madagascar, Poiss., 1871, p. 57, pl. 10, fig. 1.

Serranus sonnerati (part) Günther, Cat.
 Fishes Brit. Mus., vol. 1, 1859, p. 122
 (Sumatra). — Playfair, Fishes of

2081

— Weber, Zool. Mededel. Mus.
Leiden, vol. 6, p. 47, 1921.

— Weber and Beaufort, Fishes
Indo Austral. Archip.; vol. 4, p. 274,
1923 (Pulau Weh; Simelue; Pulau
Babi; Molele, Pulau Pangang,
Sumatra; Samarang; Osterwater
Islands; Makassar and Menado,
Celebes; south Flores; south Sumba;
Baton; Lembon; Ryoju; Thoneke,
Waigiu). — Duncker and Mohr,
Mitteil. Naturh. Mus. Hamburg,
vol. 42, p. 135, 1926 (Thilenius
and Simpson harbors, New Pomerania).

— Schmidt, Trans. Pac. Comm. Acad.
Sci. U. S. S. R., vol. 2, p. 179, 1931
(Kominato).

Epinephelus wrodeus Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, p. 41 (Sumatra, Cocos, Nias, Java, Celebes, Sangir, Ternate, Obi major, Timbora, New Guinea); vol. 8, 1876-77, pl. (43) 321, fig. 2. — Streets, Bull. U. S. Nat. Mus., no. 7, 1877, p. 91 (Fanning Islands). — Boulenger, Cat. Fishes Brit. Mus., vol. 1, 1895, p. 192 (Myosol, Timbora, Solomons, Line Islands, Micronesia, Mauritius, Zanzibar, Seychelles, Sumatra). — Jordan and Snyder, Annot. Zool. Japon., vol. 3, 1901, p. 75 (Riu Kiu). — Weber, Siboga Exped., vol. ⁵⁷~~65~~ ^{Fishes}, 1913, p. 200 (Bintang Island; Banda Island).

Epinephelus wrodeus var. wrodeus Steindachner, Abhandl. Senckenberg. Naturf. Gesell., vol. 25, 1900, p. 414 (Ternate).

Atherina hepsetus (not Linnaeus)
Forsk., descript. Animal., p. 67,
 775.

Atherina lacunosa (not Schneider)
Bleeker, Nat. Tijds. Ned. Indië,
 vol. 5, p. 504, 1853 (Padang; part).

Atherina pinguis (not Lacépède)
Bleeker, Act. Soc. Sci. Ind. Néerl.
 (Sumatra), vol. 8, p. 84, 1860.

— Klunzinger, Verh. zool. bot. Ges.
Wien, vol. 20, p. 833, 1870 (Red Sea).

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Cephalopholis urodelus (Schneider).

Perca urodetam (Forster) Schneider,
Syst. Ichth. Bloch, 1801, p. 333. & t.
Christina, Waitaho.

Perca urodeta (Forster) Lichtenstein,
Descr. Animal., 1844, p. 221 (St. Christina).

Xerranus urodelus Valenciennes, Hist.
Nat. Poiss., vol. 2, 1828, p. 306 (Tahiti);
vol. 6, 1830, p. 513 (Ulea). — Günther,
Cat. Fishes Brit. Mus., vol. 1, 1859, p. 122
(India and Amboyna); Journ. Mus.
Godeffroy, vol. 1, pt. 1, 1873, p. 3, pl. 3, fig.
a (Society, Kingmilla, Hervey, Tuamotu
and Solomon Islands, East Indies); —
Cruise of Curacao, Breckley, 1873, p.
409 (Solomon Islands), p. 410 (Misol,
Moluccas). — Martens, Preuss. Exped. Ost-
Asien, vol. 1, 1876, p. 385 (Amboyna). —
Meyer, Ann. Soc. Españ. Hist. Nat. Madrid,
vol. 14, 1885, p. 9 (North Celebes).

One example. Noyas Point, Panay.
February 3, 1908. Length 67 mm.
Scales 43. Pectoral $5\frac{1}{2}$ in total
fish.

Six examples. North end of
Endeavour Strait, north west coast
of Palawan. December 22, 1908.
Scales 42. Pectoral with black subterminal
blotch. Two faint dark streaks on side.
Vent midway in depressed ventrals.

Nineteen examples. Port Calton,
Busuanga Island. December 15, 1908.
Scales 44. Pectoral $5\frac{3}{5}$ in total length,
with dark subterminal blotch. Vent just
before tip of depressed ventral.

Five examples. Atulayan Bay, Luzon.
June 17, 1909. Length 39 to 60 mm.

8494 to 8496. Catbalogan, Samar
Island. April 16, 1908. Length 95 to 105 mm.
north Balabac Strait.

6860. Capisiyan Island, January 2,
1909. Length 79 mm.

~~no, 23960 and 23961. Danawan and Vi
asil Islands. September 26, 1909.
Length 75 to 86 mm.~~

~~23444 and 23446. Dovorai Islands.
December 2, 1909. Length 50 to 80 mm.~~

23332 to 23338. Endeavor Strait.
December 22, 1908. Length 50 to 85 mm.

227. Endeavor Strait. December 24, 1908.
Length 83 mm.

23693. Gomomo Island. December 3, 1909.
Length 43 mm.

Atherina valenciennae Bleeker

Atherina valenciennae Bleeker,
Nat. Tijds. Ned. Indië, vol. 5, p.
507, 1853 (type locality, Padang;
Batavia). — Fowler, Mem. Bishop
Mus., vol. 10, p. 119, 1928 (compiled).

- Epinephelus minimatus Bleeker,
 Atlas Ichth. Ind. Néerl., vol. 7, 1873-76,
 p. 41 (Sumatra, Java, Celebes, Flores,
 Ternate, Batjan, Obi Major, Buru,
 Ceram, Amboina, Waigiu, New Guinea).
 — Sauvage, Hist. Nat. Madagascar, Poiss.,
 1891, p. 52. — Boulenger, Cat. Fishes Brit.
 Mus., vol. 1, 1895, p. 191 (Zanzibar, Mauritius,
 Ceylon, Madras, Andamans, North Celebes,
 Amboina, Apamana, Samoa). —
Steindachner, Denkschr. Akad. Wiss. Wien,
 vol. 71, pt. 1, 1907, p. 124 (Bah-Haf, Socotra).
 — Pellegrin, Bull. Mus. Hist. Nat. Paris,
 vol. 13, 1907, p. 204 (Tuléar, Madagascar).
 — Gilchrist and Thompson, Ann. South
 Afr. Mus., vol. 6, 1908-10, p. 215 (Natal).
 — Weber, Siboga Exped., vol. ^{57 Fische} 65, 1913, p. 200
 (Beo; Salomabie; Saleyer; Banda;
 Tiur, Island; Pepla Bay, Rotti). —
Barnard, Ann. South Afr. Mus., vol. 21,

Atherina valenciennesii Bleeker,
Nat. Tijds. Ned. Indië, vol. 15,
p. 242, 1858 (Singapore). —

Günther, Cat. Fish. Brit. Mus.,
vol. 3, p. 398, 1861 (copied). —

Jordan and Snyder, Annot. Zool.
Japan., vol. 3, p. 62, 1901 (reference).

— Weber, Siboga Exped., vol. 57,
Fische, p. 136, 1913 (Macassar,
Biaru).

(no locality). — Playfair, Fishes of Zanzibar,
1866, p. 3 (Aden). — Klunzinger, Verh.
zool. bot. Gesell. Wien, vol. 20, 1870, p.
679 (Koseir). — Günther, Journ. Mus.
Codeffroy, vol. 1, pt. 1, 1873, p. 5, pl. 5
(Polynesia, Samoa). — Day, Fishes of
India, pt. 1, 1875, p. 24, pl. 6, fig. 2. —
Peters, Monatsber. Akad. Wiss. Berlin,
1876, p. 435 (Mauritius). — Klunzinger,
Fische Roth. Meer., 1884, p. 4 (Koseir). —
Day, Fauna Brit. India, vol. 1, 1889, p. 456.
— Pearson, Rep. Gov. Marine Biol. Ceylon,
1912-13, pt. 4, p. £13.

Cromileptes miniatus Swainson, Nat. Hist.
Animals, ^{Fishes?} vol. 2, 1839, p. 201 (on Rüppell,
pl. 26, fig. 3).

Alphapopholis miniatus Fowler, Proc.
Acad. Nat. Sci. Phila., 1901, p. 252

~~Alphapopholis miniatus Fowler, Proc.
Acad. Nat. Sci. Phila., 1901, p. 252~~

Litherna valenciennesi Bleeker,
 Nat. Tijds. Ned. Indië, vol. 20,
 p. 203, 1857-60 (Karangbolong).

— Sauvage, Hist. Nat. Malaya (Siam),
 Poiss., p. 407, 1891 (reference). —

Weber, Zool. Med. Zool. Mus. Leiden,
 vol. 6, p. 52, 1921.

— Weber and Beaufort, Fishes Indo-
 Austral. Archip., vol. 4, p. 272, ^{fig. 70} 1922

Batavia, Samarang, Surabaja,
 Pekalongan, Panarukan; Kota
 Borneo, Bulik-papan, Borneo;
 Macassar; Flores; Biarn). —

Luncker and Mohr, Mitteil. Naturh.
 Mus. Hamburg, vol. 42, p. 135, 1926

(Simpson Harbor, New Guinea).

— Fowler, Journ. Bombay Nat. Hist. Soc., vol. 55, no. 1, p. 10, September 3, 1928 (Bombay).

Hepsetia valenciennesi Jordan and

Hubbs, Stanford Public., p. 33,

1919 (reference).

Cephalopholis miniatus (Forskål).

Perca miniata Forskål, Descript.

Animal., 1775, pp. XII, 41. Djidda and
Lohaja, Red Sea. — Bonnaterre, Tabl.
Ichth., 1788, p. 131 (on Forskål). —

Gmelin, Syst. Nat. Linn., ^{vol. 1} 1789, p. 1317
(Arabia). — Walbaum, Sist. di Pisc.,
vol. 3, 1792, p. 338 (on Forskål).

Bodianus miniatus Schneider, Syst.
Ichth. Bloch, 1801, p. 332 (Red Sea). —
Fowler, Journ. Acad. Nat. Sci. Phila.,
ser. 2, vol. 12, 1904, p. 522 (Gadang,
Sumatra).

Diaope miniata Cuvier, Hist. Nat. Poiss.,
vol. 2, 1828, p. 433 (on Forskål).

Serranus miniatus Rüppell, Atlas
Reise nördl. Afri., ^{part 12} Fische, 1828, p. 106, pl. 26,
fig. 3 (Red Sea). — Peters, Wich. Naturg.,
1855, p. 235 (Mozambique). — Günther,
Cat. Fishes Brit. Mus., vol. 1, 1859, p. 118

Depth $4\frac{3}{4}$ to 5; head 4 to $4\frac{1}{8}$, width $1\frac{3}{4}$ to $1\frac{4}{5}$. Snout $3\frac{1}{2}$ to 4 in head; eye $2\frac{2}{3}$ to $2\frac{3}{4}$, greater than snout, 1 to $1\frac{1}{8}$ in interorbital; maxillary reaches eye, length $2\frac{3}{5}$ to $2\frac{4}{5}$ in head; teeth villiform, minute, in bands in jaws, on vomer and palatines; interorbital $2\frac{2}{5}$ to $2\frac{1}{2}$, level. Gill rakers 6 + 19, lanceolate, little longer than gill filaments or $2\frac{1}{5}$ in eye.

Scales 39 or 40 in medial lateral series to caudal base and 4 or 5 more on latter; 8 transversely, 19 to 21 predorsal, single row on cheek. Scales with 2 or 3 close set median basal

4 predorsal, 2 or 3 rows on cheek.
Tubes in lateral line large, simple,
each well exposed and with small
basal crenulated scale. ~~each side~~
Scales with
21 to 25 basal parallel to subradiating
striae; 179 to 230 apical denticles, with
3 or 4 transverse series of basal elements;
~~none~~ circuli fine, none apical.

D. VII - I, 9, I, third spine $1\frac{2}{3}$ in
total head length, second branched
dorsal ray long as head in male or
 $1\frac{1}{5}$ to $1\frac{2}{5}$ in female; A. II, 8, I, second
spine $2\frac{3}{4}$ to 3, first branched ray $1\frac{1}{2}$
to $1\frac{3}{4}$; caudal ^{equally head,} little emarginate
behind, upper lobe usually longer,
both lobes more or less rounded;
least depth of caudal peduncle $1\frac{7}{8}$ to

points; 25 to 35 parallel vertical striae.

D. V — I, 9, I, first spine $2\frac{1}{5}$ to $2\frac{1}{4}$ in head, first branched ray $1\frac{2}{5}$ to $1\frac{4}{5}$; A. III, I, 10, I, first branched ray $1\frac{2}{3}$ to $1\frac{3}{4}$; caudal $1\frac{1}{10}$ to $1\frac{1}{8}$, forked; least depth of caudal peduncle 3 to $3\frac{1}{8}$; pectoral $1\frac{1}{6}$ to $1\frac{1}{4}$; ventral $1\frac{4}{5}$ to $1\frac{7}{8}$. Vent before first third in depressed ventral and 6 scales back to vertical line through body from first dorsal origin.

Light brown, paler below. Each scale on back above sprinkled with dusky brown dots, though

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Depth $2\frac{1}{3}$ to $2\frac{2}{5}$; head $2\frac{2}{3}$ to $2\frac{3}{4}$,
width $1\frac{4}{5}$ to 2. Snout $3\frac{7}{8}$ to $4\frac{1}{5}$ in
head from snout tip; eye $2\frac{7}{8}$ to 3,
greater than eye or interorbital; maxillary
reaches $\frac{3}{5}$ to $\frac{2}{3}$ in eye, expansion $2\frac{1}{3}$ to $2\frac{2}{5}$
in eye, length 2 to $2\frac{1}{10}$ ^{in head}; teeth in villiform
bands in jaws, on vomer and palatines;
interorbital 4 to $4\frac{1}{4}$, nearly level;
preopercle ridge entire in young, finely
serrate with age, also preopercle edge
always serrate; preorbital and
edge of orbital socket always entire.
Gill rakers 6 + 16, lanceolate, much
longer than gill filaments or $2\frac{1}{4}$ in eye.

Scales 23 or 24 in lateral line
to caudal base and 6 or 7 more on
latter, 2 or 3 above, 6 or 7 below, 3 or

leave broad uniform margin.
Underlaid gray band from
pectoral axil to caudal base,
medianly, widest at latter
not quite equal to eye. Iris
slaty. Row of dusky dots on
lower surface of tail close
along anal base. Fins all pale,
hind caudal edge dusky.
Narrow dusky line across
pectoral base.

~~Amia griffini Seale~~

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Amia griffini Seale, Philippine
Journ. Sci., vol. 5, no. 2, 1910, p.
117, plate 2, fig. 2. Bantayan
Island, Philippines.

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Two examples. Sandakan Bay,
Borneo. March 1, 1908. Length 77
to 84 mm.

Five examples. Sandakan Bay.
March 2, 1908. Length 69 to 84 mm.

^{Seven}
~~Three~~ examples. Kowloon, China.
August 22, 1908. Length 17 to ~~22~~⁹⁰
mm. In poor condition.

Two examples. Kowloon. September
14, 1908. Length 74 to 84 mm.

Two examples. Kowloon. November
1, 1908. Length 55 to 90 mm. Caught
with dip net over ship side by means
of submarine light.

Pale brown generally. Upper
 surfaces of head and back with
 each scale edged with minute
 dusky dots, little contrasted.
 Three parallel dark close set
 dusky lines down middle of
 predorsal. Narrow dark axial
 line on side from above ventral
 origin to middle of caudal base.
 Cutaneous lateral flap along
 each side of mandible blackish
 anteriorly, pale or whitish toward
 base, dark color due to minute
 blackish dots. Iris white. Lower
 median cutaneous keel of mandible
 sprinkled with dark or gray
 dots. Fins largely pale or
 whitish, dorsal and caudal
 tinged with gray. Each ventral with few
 black dots before base and several at tip of each fin.
 U. N. S. P., No. 59860. Chiang
 Mai, North Siam. January 22, 1933.
 Length 69 mm. Type.

A. N. S. P., three examples. Bombay,
Prof. F. Hallberg. Length 70 to 76 mm.

6 examples. Canmakhala Bay, Luzon.
March 11, 1909. Length 50 to 60 mm.

8498 to 8538. Catbalogan, Samar.
April 16, 1908. Length 78 to 85 mm.

26 examples. Cataingan Bay, Masbate
Island. April 18, 1908. Length 25 to 35 mm.

1589 [D. 5136]. Jolo Light, S. 37° E.,
0.70 mile ($6^{\circ} 04' 20''$ N., $120^{\circ} 59' 20''$ E.),
vicinity of Jolo. In 22 fathoms.

February 14, 1908. Length 82 to 90 mm.
5 examples.

18177, 18178. Port San Pio Quinto,
Camiguin Island, China Sea, vicinity
Batanes. November 11, 1908. Length
64 to 67 mm.

6 examples. U.S.N.M. Acc. No. 100,455.
Length 34 to 63 mm.

(Boleling, Bali); vol. 18, p. 354,
1859 (Bawean); Act. Soc. Ind.
Néerl., vol. 3, no. 9, p. 4, 1857-58
(Trussan, Sumatra); vol. 6, no.
2, p. 4, 1859 (Dorek, New Guinea).

— Alleyne and Macleay, Proc.
Linn. Soc. New South Wales, vol.
1, p. 339, 1876 (Cape York). —

Boulenger, Ann. Mag. Nat. Hist.,
ser. 6, vol. 20, p. 373, 1891 (Rotuma).

— Sauvage, Hist. Nat. Madagascar,

Poiss., p. 407, 1891 (reference). —

— Waite, Rec. Austral. Mus., vol. 5, pt. 3, p. 197, March 11, 1904 (reference).

^ Jordan and Seale, Bull. Bur.

Fisher., vol. 25, p. 216, 1905 (1906)

(reference). — Seale, Occas. Pap.

Bishop Mus., vol. 6, no. 1, p. 15, 1906

(Shortland Island; 'Faté'). —

Evermann and Seale, Bull. Bur.

Fisher., vol. 26, p. 59, 1906 (1907)

Caracanthus, new genus

Body elongately ellipsoid, moderately compressed, especially posteriorly. Caudal peduncle rather deep. Head large, depressed, upper profile depressed over eye. Snout broad, depressed, convex in profile. Eye small, high, before first third in head, with free lids. Mouth rather large, terminally superior. Lips rather narrow, fleshy. Mandible well protruded, broad, shallow. Teeth in jaws in bands, conic, larger and smaller intermixed. Tongue broad, spatulate, edge convex in front. Nostrils small, similar, close together, close before eye. Interorbital low, depressed to level. Gill rakers short, low, broad, rather small. Scales small, crowded and cycloid.

- Waite, Rec. Canterbury Mus., vol. 1, no. 1, p. 15, April 25, 1907 (reference). ²⁹⁹⁴
(Bacon). — Jordan and Richardson,
Bull. Bur. Fisher., vol. 27, p. 243,
1907 (1908) (Sydney). — Seale and
Bean, Proc. U. S. Nat. Mus., vol. 33,
p. 240, 1907 (Zamboanga). —
Kendall and Goldsborough, Mem.
Mus. Comp. Zool., vol. 26, 1911, p.
253 (Wotje; Moen). — Ogilby,
Mem. Queensland Mus., vol. 1, p.
40, pl. 12, fig. 2, text fig. b, 1912
(Bulwer). — Whitley, Pan Pac.
Res. Inst. Journ., vol. 3, no. 1,
p. 12, January-March 1928 (Santa
Cruz Islands).

Handus nebulosus (Gray)○

Six, 52 to 77 mm., Chantaboon.

Pristolepis fasciatus (Bleeker)○

Seventy-eight, 37 to 150 mm.,
Chiang Mai; Three, 93 to 106 mm.,
Hua Mak; one, 81 mm., Bua
Yai; seven, 71 to 82 mm., Chantaboon;
two, 143 to 152 mm., Bangkok.

Scorpaenidae

Scorpaenopsis novae-guineae (Bleeker)○

One, 151 mm., Bangkok.

Toxotidae

Toxotes micropis (Günther)○

One, 115 mm., Bangkok.

Chaetodontidae

Heniochus acuminatus (Linnaeus)○

One, 174 mm., Chantaboon?

Siganidae

Hepsetia lacunosa Jordan and Hubbs,
Stanford Public., p. 33, 1919 (reference).
— McCulloch and Whitley, Mem.
Queensland Mus., vol. 8, pt. 2, p. 140,
July 7, 1925 (reference). — Whitley,
Journ. Pan Pac. Res. Inst., vol.
2, no. 1, p. 4, January-March 1927
(Fiji); — Fowler, Mem. Bishop Mus.,
vol. 10, p. 120, 1928 (Shortland Island;
Fate; Moen; Wotje). — McCulloch,
Mem. Austral. Mus., vol. 5, pt. 1,
p. 109, June 29, 1929 (reference). —
Fowler, Mem. Bishop Mus., vol. 11,
no. 5, p. 324, 1931 (compiled).

(Rec. Austral. Mus., vol. 16, no. 1, p. 11,
October 7, 1927 (Michaelmas Cay,
Queensland)).

Siam. March 12, 1933. Length
150 mm. Type.

Differs from Johnius jubatus
(Bleeker), known from the Malay
Peninsula, Sumatra, and Borneo,
in the dark or blackish cuneate
blotch on the pectoral fin. In
that species as described by
Bleeker no mention is made of
the black axillary pectoral blotch,
if present. Though Bleeker
says "præoperculo ~~*****~~ marginæ
posteriore inferne præsertim
conspicue denticulato" his figure
shows it entire. He also does not
mention or show any of the
opercular bones denticulated.
His figure shows a more terminal
mouth than my specimen, also the
pectoral fin reaching a little
more posteriorly.
(Μέλας black + Βραχίον arm
or pectoral fin.)

Atherina argyrotaeniata Bleeker

? Atherina argyrotaeniata Bleeker,
Journ. Ind. Archip., vol. 3,
p. (64) 72, 1849 (type locality,
Macassar). — Günther, Cat.
Fish. Brit. Mus., vol. 3, p. 392,
1860 (reference).

Atherina argyrotaenia Bleeker,
Nat. Tijds. Ned. Indië, vol. 17,
p. 143, 1858-59 (Boleling, Bali).
— Jordan and Hubbs, Stanford
Public., p. 41, 1919 (reference).

Cephalopholis pachycentron Evermann
and Seale, Bull. Bur. Fisher., vol. 26,
1906 (1907), p. 76 (Bacon).

Serranus guttatus (non Bloch) Valenciennes,
Hist. Nat. Poiss., vol. 2, 1828, p. 359
(specimen from Waigiu).

Serranus ganamella (non Valenciennes)
Bleeker, Verh. Batav. Genootsch. (Percoid),
vol. 22, 1849, p. 37 (Batavia, Java). —
Günther, Cat. Fishes Brit. Mus., vol. 1, 1859,
p. 116 (copied). — Gongora, Ann. Soc.
Españ. Hist. Nat. Madrid, vol. 17, 1888,
p. 282 (Mindoro).

Serranus microprion Bleeker Nat. Tijds.
Ned. Indie, vol. 3, 1852, p. 552. Amboyna.
— Günther, Cat. Fishes Brit. Mus., vol.
1, 1859, p. 116 (~~Amboyna, Amboyna~~ Louisiades).
— Elera, Cat. Fauna Filip., vol. 1, 1895,
p. 460 (Samar, Villa real, Panay).

~~Hepsetia brachyptera Bleeker~~

? Atherina brachypterus Bleeker,
Nat. Tijds. Ned. Indië, vol. 2,
p. (227) 243, 1851 (type locality,
Banda, Neira).

Atherina brachyptera Günther,
Cat. Fish. Brit. Mus., vol. 3,
p. 401, 1861 (copied). — Sauvage,
Hist. Nat. Madagascar, Poiss.,
p. 406, 1891 (reference).

Hepsetia brachyptera Jordan
and Hubbs, Stanford Public.,
p. 34, 1919 (reference).

more broken blotches on soft fin.
Caudal grayish, with 5 blackish
rescentic bars posteriorly. Anal
grayish, with 6 variably oblique
dark bands. Paired fins gray,
with transverse dark bands,
two dark bars on caudal base.

A. N. S. P., No. 60009. Bangkok,
Siam. March 11, 1933. Length
215 mm. Type.

A. N. S. P., No. 60010, Paratype,
same data. Length 192 mm. Also
3 others with same data, 134 to 183
mm.

Distinctions in the generic
account.

(Πλάτος wide + κεφαλή head,
head much broader than deep.)

Buteis buteis (Buchanan-Hamilton)
Two, 93 to 108 mm., Bangkok.

~~Atherina temminckii Bleeker~~

2098

Atherina temminckii Bleeker, Nat.
 Tijds. Ned. Indië, vol. 5, p. 506,
 1853 (type locality, Priaman, Sumatra;
 Batavia); vol. 12, p. 193, 1856
 (Ternate); Act. Soc. Sci. Ind.
 Néerl., vol. 1, no. 3, p. 5, 1856
 (Munado); vol. 3, no. 5, p. 2,
 1857-58 (Macassar). — Günther,
 Cat. Fish. Brit. Mus., vol. 3, p. 392,
 1860 (reference). — Sauvage, Hist.
 Nat. Madagascar, Poiss., p. 407,
 1891 (reference). — Jordan and
 Seale, Proc. U. S. Nat. Mus., vol. 28,
 p. 774, 1905 (Negros). — Evermann
 and Seale, Bull. Bur. Fisher., vol.
 26, p. 59, 1906 (1907) (Bulan; Bacon).

$3\frac{1}{5}$ to $3\frac{1}{3}$, sixth ray $2\frac{1}{3}$ to $2\frac{3}{5}$; caudal $1\frac{3}{5}$ to $1\frac{4}{5}$, rounded; least depth of caudal peduncle $2\frac{3}{5}$ to 3; pectoral $1\frac{1}{2}$ to $1\frac{3}{5}$; ventral $1\frac{7}{8}$ to $2\frac{1}{8}$.

Orange red, little faded, lower surface little lighter or brighter. Except paired fins, head below and abdomen, body with small dark brown ringed or ocellated blue spots. Eye yellowish, with several brown spots. Inside gill opening more or less tinged with orange. Margins of vertical fins, also of ventrals, narrowly blackish brown. Upper and lower edges of caudal with narrow whitish edges, but not extending to middle rays. Paired fins deep orange red.

— Weber, Siboga Exped., vol. 57,
Fische, p. 135, 1913. (Pternoster
Islands, Siau, Fao, Ceram,
Saleyer). — Jordan and Hubbs,
Stanford Public., p. 41, 1919
(reference). — Fowler, Mem. Bishop
Mus., vol. 10, p. 118, 1928 (Truk;
Wotje; Suva; Rangiroa; Moen;
Urhno; Ratak Chain; Guam).

or $\frac{1}{2}$ of eye; 5 to 7 above and below rudimentary.

Scales 90 to 103 in lateral line to caudal base and 15 to 18 more on latter; tubes 48 to 52 in lateral line to caudal base and 3 or 4 more on latter; 14 to 17 scales above lateral line, 27 to 34 below, 54 to 56 predorsal, 24 to 28 rows across cheek; basal portions of fins more or less covered with small scales; body scales without fine auxiliary basal scales; maxillary with upper $\frac{3}{5}$ of expansion finely scaled. Scales with 7 or 8 basal radiating striae; 31 to 51 apical denticles, with 3 or 4 transverse series of basal elements; circuli fine.

D. IX, 15, I or 14, I, fourth spine $3\frac{1}{4}$ to 4 in total head length, twelfth ray $2\frac{1}{3}$ to $2\frac{7}{8}$; A. III, 9, I, third spine

Atherina temminckii Bleeker, Nat.
Tijds. Ned. Indië, vol. 22, p. 249,
1860 (Timor). — Weber, Zool. Ned.
Mus. Leiden, vol. 6, p. 52, 1921
) — Weber and
Beaufort, Fishes Indo Austral.
Archip., vol. 4, p. 269, 1922 (Pulu
Weh; Pulu Babi; Paternoster
Islands; Flores; Adonare; Sumba;
Saleyer; Siao; Gisser; Kawa,
Ceram; near Gebe; Tual; Kur).
— Chevey, Serv. Inst. Océan. Indo
Chine, 19^e note, p. 19, August 25,
1932 (Amam).

Atherina temminckii Borodin, Bull.
Vanderbit. marine Mus., vol. 1, art. 2,
p. 49, 1930 ("Kusire, Caroline Islands")
(error).

Depth $2\frac{2}{3}$ to 3; head $2\frac{2}{5}$ to $2\frac{1}{2}$, width $2\frac{1}{3}$ to $2\frac{3}{5}$. Snout $3\frac{5}{6}$ to $4\frac{1}{2}$ in head from snout tip; eye $5\frac{1}{5}$ to $7\frac{1}{4}$, $1\frac{1}{5}$ to 2 in snout, greater than interorbital in width to $1\frac{1}{10}$ with age; maxillary reaches below hind rim of eye or little beyond, expansions ^{For slightly exceeds} equals eye, length 2 to $2\frac{1}{10}$ in head from snout tip; teeth in bands in jaws, inner depressible and edges of each jaw with outer row little larger; mandible with 6 rows in front narrowing to single inner row posteriorly; pair of canines in front of each jaw; minute teeth on vomer and palatines; interorbital $6\frac{1}{4}$ to $6\frac{2}{5}$, convex; preopercle edge minutely and unevenly serrated; lower opercle spine little more advanced and upper more distant from median. Gill rakers 8 or 9 + 14 to 17, little longer than gill filaments

2101

Atherina togar Thiollière, Fauna
Woodlark, p. 183, 1857 (type
locality, Woodlark Island).

? Atherina japonica (not Bleeker)
Kner, Reise Novara, Fische, p. 221,
1865 (Java).

pectoral $1\frac{3}{5}$, rays 1, 19; ventral
rays $\frac{1}{6}$, fin length 2 in head.

Back gray, with slight
lilac tinge. Under surfaces
white with silvery sheen. Head
gray above, sides and below
whitish. Iris white. Under
surface of snout, lips and
mandible whitish. Opercle dark
gray. Inside gill opening with
dark neutral gray to blackish.
Dorsals and caudal pale to
whitish basally, shaded with
gray to dusky terminally. Pectoral
dark neutral gray to blackish
medially in triangular formed
area; inside pectoral base
large black blotch at axil,
also inner surface of fin blackish
like outer. Ventrals and anal
whitish.

2102

Atherina gobicus Klunzinger

Atherina gobicus Klunzinger, Fische
Roth. Meer., p. 130, pl. II, fig. 4, 1884
(type locality, Red Sea). — Jordan
and Hubbs, Stanford Public., p. 44,
1919 (reference).

Atherina cylindrica (not Valenciennes)
Klunzinger, Verh. zool. bot. Ges. Wien,
vol. 20, p. 834, 1870 (Red Sea). —
~~Jordan and Hubbs, Stanford Public.,
p. 44, 1919 (reference).~~

and therefore fewer. Sometimes
body and fins with small
irregular gray white spots, often
ill defined or variably distinct
in preserved examples.

Arabia, Gambia, Delagoa Bay,
Natal, Madagascar, Mauritius,
Seychelles, India, Ceylon, East
Indies, Philippines, Australia,
Melanesia, Micronesia, Polynesia.
Boulenger gives a maximum length
of 540 mm. though we have no
examples so large. Most of our
specimens pale and in alcohol
the markings only variably distinct.

2103

? Atherina insila Jordan and Seale,
Bull. Bur. Fisher., vol. 25, p. 216,
fig. 23, 1905 (1906) (type locality,
Apia). — Kendall and Goldborough,
Mem. Mus. Comp. Zool., vol. 26, p. 255,
1911 (Wotje Atoll, Marshalls). —
Jordan and Hubbs, Stanford Public.,
p. 42, 1919 (reference).

Atherina insila Seale, Philippine
Journ. Sci., vol. 4, p. 498, 1909.

Atherina paratela Jordan and Richardson,
Bull. Bur. Fisher., vol. 27, p. 243, fig.
6, 1907 (1908) (type locality, Culuyan
Island). — Jordan and Hubbs,
Stanford Public., p. 42, 1919
(reference). — Borodin, Bull.

Vanderbilt Mus., vol. 1, art. 2, p. 41,
1930 (Parang, Indian Ocean).

November 28, 1909. Length 158 mm.

13534. Makyan Island. November 29, 1909. Length 117 mm.

19026. North West Verde Island. July 22, 1908. Length 135 mm.

9957. Roc Can Island, Sulu Sea.

January 7, 1910. Length 200 mm.

6952. West coast Sabtan Island, China Sea, vicinity Formosa. November 8, 1908. Length 293 mm.

pl. (5) 283, fig. 3.

Cephalopholis maculatus Seale and Bean,

Proc. U. S. Nat. Mus., vol. 33, 1907, p. 235,

fig. 5. Zamboanga.

Epinephelus melas (non Peters) Gilchrist
and Thompson, Ann. South Afr. Mus.,
vol. 6, pt. 3, 1909, p. 220 (natal).

Atherina endrachtensis (not Quoy²¹⁰⁴
and Gaimard) Kendall and Goldsbrough,
Mem. Mus. Comp. Zool., vol. 26, p. 254,
1911 (Arhu Atoll; Moen; Suva;
Rangiroa; Tuamotus).

2092

Atherina
~~Hepsetia~~ lacunosa ^{nm (Forster)} Schneider

Atherina lacunosa ^{nm (Forster)} Schneider,
Syst. Ichth. Bloch, p. 112, 1801
(type locality, New Caledonia).

Atherina lacunosa Valenciennes,
Hist. Nat. Poiss., vol. 10, p. 454,
1835 (New Caledonia). —

Lichtenstein, Descript. Animal.
Forster, p. 298, 1844 (New Caledonia).
— Bleeker, Nat. Tijds. Ned. Indië,
vol. 5, p. 504, 1853 (Padang; Batavia;
Banda, Neira); vol. 6, p. 90, 1854
(Banda, Neira), p. 204 (Timor,
Kupang); vol. 8, p. 437, 1855
(Bonthaian, Celebes); vol. 12,
p. 193, 1856 (Ternate); vol. 13,
p. 388, 1857 (Timor, Deli); vol.
15, p. 201, 1858 (Goram), p. 242
(Singapore); vol. 17, p. 143, 1858-59

Siganus oramin (Schneider) ²

Two, 208 mm., Bangkok. Greatly like Day's figure except my specimens show: depth $2\frac{3}{4}$ to 2. The more slender one with similar black blotch behind gill opening. Both mottled with white or marked with white spots.

Callyodontidae

Callyodon fasciatus (Valenciennes)

One, 270 mm., Bangkok. I thought now largely blue, inclining to green, its pattern of coloration especially about the head is greatly like that of Bleeker's figure of Pseudoscarnus rivulatus.

Eleotridae

Eleotris fusca (Schneider)

One, 150 mm., Bangkok.

Depth $5\frac{1}{3}$ to 6; head $3\frac{2}{5}$ to $3\frac{3}{4}$, width $2\frac{1}{3}$ to $2\frac{2}{3}$. Snout $3\frac{7}{8}$ to 4 in head from snout tip; eye $2\frac{3}{5}$ to 3, greater than snout or interorbital, limping on upper profile; maxillary reaches $\frac{1}{8}$ to $\frac{1}{5}$ in eye, length $2\frac{2}{5}$ to $2\frac{3}{5}$ in head from snout tip; teeth minute; mandibular rami well elevated inside mouth; interorbital $3\frac{1}{8}$ to $3\frac{2}{5}$ in head from snout tip, low, slightly depressed. Gill rakers 5 + 15, lanceolate, slender, $1\frac{3}{4}$ in eye; gill filaments $\frac{3}{4}$ of gill rakers.

Scales 40 to 44 in lateral series; 7 transversely, 18 or 19 predorsal. Scales with 1 to 4 basal knobs; 7 to 10 basal rows of close set vertical striae.

D. V - I, 9, I, first spine $2\frac{1}{4}$ to $2\frac{1}{3}$ in total head length, first

dorsal ray $2\frac{1}{4}$ to $2\frac{1}{3}$; A.I, 10, first
 ray $2\frac{1}{4}$ to $2\frac{2}{5}$; caudal $1\frac{1}{3}$ to $1\frac{3}{4}$,
 emarginate; pectoral $1\frac{2}{3}$ to $1\frac{4}{5}$;
 ventral $2\frac{1}{5}$ to $2\frac{1}{3}$; least depth
 of caudal peduncle $3\frac{1}{2}$ to $3\frac{3}{4}$.

Pale brownish, scales on back
 with finely dusky edges. Side
 with silvery white band wide
 as pupil. Fins pale brown.

2107

A slender trim species with
the vent. 3 or even 4 scales behind
depressed ventral with age.
In young vent may even be
shortly before depressed
ventral tip.

2108

The following is condensed from
Atherina argyrotaeniata Bleeker:

Depth $6\frac{1}{2}$, body cylindrical;
head $4\frac{1}{2}$. Eye $2\frac{1}{2}$ in head; mouth
oblique. Scales large.

D. VI — I, 9 or 10; A. I, 10; second
dorsal and anal with emarginate
edges; pectoral $5\frac{1}{2}$ in body, rays
I, 14; ventral rays I, 5.

Back greenish, below pink
silvery. Silver lateral band,
with blue edge above. Fins
clear. Irish gray above. Length
not given.

The following is also condensed
from Klemzinger's account and
figure of Atherina gobio:

2109

Depth 6; head $4\frac{1}{2}$. Snout $2\frac{3}{4}$ in head; eye 4, $1\frac{2}{5}$ in snout; maxillary reaches $\frac{3}{4}$ to orbit, length $2\frac{3}{4}$ in head; no palatine teeth; interorbital apparently level.

Scales 42 to 45 in lateral series; 6 transversely; 19 predorsal forward to head.

D. VI - I, 9, first dorsal spine $2\frac{3}{4}$ in head, about 1 scale behind vent; first dorsal ray $2\frac{3}{4}$; A. I, 12, first ray $2\frac{3}{4}$; caudal 1, deeply forked; least depth of caudal peduncle $3\frac{1}{8}$; pectoral $1\frac{1}{8}$, rays 17; ventral 2 in head; vent 3 scales behind depressed ventral tip.

Back with blackish brown spot at base of each scale and blue white dots. Belly white with bluish reflections. Silvery lateral band, edged blue above. Iris with dusky. Blackish blotch

2110

on pectoral before tip. Length 100 mm.
(Klunzinger)

~~Red Sea.~~

Jordan and Richardson have described Atherina paratela:

Depth $6\frac{4}{5}$; head $4\frac{1}{4}$, width $1\frac{7}{8}$.
Snout $3\frac{3}{4}$ in head; eye $3\frac{1}{10}$,
greater than snout or interorbital;
maxillary reaches eye; interorbital
flat; upper teeth minute, in
imperfect band, irregular outer
row little enlarged, lower
obsolete.

Scales 36 in lateral series;
19 predorsal. Scale edges entire.

D. VI - I, 9, second spine $2\frac{1}{3}$
in total head, first branched
ray $2\frac{1}{4}$; A. I, 11, first branched
ray 3; caudal I?, forked; least
depth of caudal peduncle $4\frac{1}{8}$;
pectoral $1\frac{1}{3}$; ventral 2.

Scales 32 or 33 in lateral line to caudal base and 2 or 3 more on latter; 7 above, 4 below to ventral, 4 or 5 below to anal origin; 14 or 15 predorsal. Lateral line complete, axial, tubes simple. Head largely covered with parallel vertical striae, few horizontal before eye. Scales with 11 to 14 apical radiating striae, each more or less finely waved; 4 to 9 straighter radiating basally, circuli fine.

D. IV, 8, I, third simple ray as robust spine, its front edge entire, hind edge with 20 to 23 rather large, long, antrorse denticles, spine length $1\frac{1}{8}$ to 1 in head; A. III, 5, I, first branched ray $1\frac{3}{4}$ to 2; least depth of caudal peduncle $2\frac{1}{4}$ to $2\frac{1}{2}$;

2111

Dark straw color. Scales of back and sides with dark dots, few dark edges or submarginal dark lines. Blackish or silvery lateral band wide as scale. Belly pale. Top of nose, interorbital and opercles blackish. Length 100 mm.

15693. Alimango Bay, Burias Island. March 5, 1909. Length 67 mm.

Five examples. Atulayan Bay, Atulayan Island, Luzon. June 17, 1909. Length 44 to 69 mm.

Three examples. ^{Baybay Bay,} Esparada Island, Morongos. March 12, 1909. Length 38 to 63 mm.

Two examples. Balamban, Cebu. April 2, 1908. Length 43 to 48 mm.

Three examples. Baliksias Bay, Lubang. July 14, 1909. Length 65 to 68 mm.

Nine examples. Batan Island tide pools. June 5, 1909. Length 38 to 78 mm.

^{Two} ~~Three~~ examples. Bira Channel, June 2, 1909. Length 57 to 64 mm.

Four examples. Bolalo Bay, Palawan. December 20, 1908. Length 52 to 80 mm.

Three examples. Bolalo Bay. December 21, 1908. Length 62 to 78 mm.

Scales 40 in lateral series from gill opening to caudal base and 3 more on latter; 10 scales above anal origin to middle of back; 5-6 scales over predorsal to snout tip. Caudal base scaly. Lateral line low, incomplete, distinct only to ventral origin. Scales with 5 short marginal radiating striae and 2 or 3 imperfect auxiliaries; circuli concentric, 10 apical, 16 to 18 basal.

D. III, 6, second branched ray $1\frac{1}{2}$ to 2 in head from snout tip; A. III, 11, I, first branched ray 2 to $2\frac{1}{8}$; least depth of caudal peduncle $3\frac{1}{4}$ to $4\frac{1}{2}$; pectoral $1\frac{1}{5}$ to $1\frac{1}{5}$, rays I, 9; ventral rays I, 5, fin $2\frac{1}{5}$ to $2\frac{1}{2}$ in head from snout tip; caudal $4\frac{1}{8}$ to $4\frac{3}{5}$ in rest of fish to snout tip.

28 examples. Bolinao Bay.

May 9, 1909. Length 28 to 60 mm.

6117. Bolinao Bay. May 10, 1909.
Length 43 to 72 mm. Three examples.

Fourteen examples. Bengao
Anchorage, Sulu Archipelago.
February 22, 1908. Length 60 to 122 mm.

116 examples. Bulan Island,
Samarco Group, south of Zamboanga.
September 13, 1909. Length 17 to 62 mm.

135 examples. Busin Harbor,
Burias Island. April 22, 1908. Length
17 to 78 mm.

7091. Busin Harbor. March 8, 1909.
Length 71 to 79 mm. Two examples.

Three examples. Butuanan Island,
Luzon. June 12, 1909. Length 46 to 56
mm.

One example. Cagayan de Jolo,
Jolo Sea. January 8, 1909. Length 43 mm.

nine examples. Canimo Island near
Daet. June 15, 1909. Length 26 to 32 mm.

2114

58 examples. Canmahala Bay,
Ragay Gulf, Luzon. March 11, 1909.
Length 21 to 60 mm.

15085. Capulaan Bay, Pagbilao
Island. February 24, 1909. Length
90 mm.

Twelve examples. Caracaran
Island. June 8, 1909. Length 43 to 69 mm.

Eight examples. Catangan Bay,
Masbate. April 18, 1908. Length 63
to 70 mm. Eaten by Cirolana orientalis
Dana, very ravenous, first devouring
eyes, then gills, then working into
body cavity, all of this done in ten
minutes.

One example. Cebu market. August
26, 1909. Length 58 mm.

One example. Endeavour Strait,
Palawan. December 23, 1908. Length
60 mm.

One example. Galera Bay, Mindoro.
June 4, 1908. Length 55 mm.

Twelve examples. Galera Bay. June 9, 1908.
Length 92 to 110 mm.

23 examples. Gujilugan, Negros.
April 2, 1908. Length 30 to 50 mm.

83 examples. Zolo. February 7, 1908.
Length 45 to 94 mm.

138 examples. Zolo. February 8,
1908. Length 30 to 80 mm. Some
examples with 3 rows of black
dots laterally below. Vent usually
opposite first dorsal origin, often
several scales before.

Eight examples. Zolo Anchorage.
March 5, 1908. Length 37 to 70 mm.

7742, 7743. Zolo market.
February 12, 1908. Length 78 to 87 mm.

Three examples. Zolo. September
16, 1909. Length 32 to 43 mm.

Eighteen examples. Lampiran
Island. September 11, 1909. Length 20
to 39 mm.

Eight examples. Looe, Lubang
Island. July 18, 1908. Length 32
to 80 mm.

One example. Lucena Anchorage,
Tayabas. February 24, 1909. Length
49 mm. Snout broadly depressed.
Mouth very small, very narrow.
Eyes very large, facing below.
An unusual pronounced variant,
extreme in the above characters.

Four examples. Maculabo Island.
June 13, 1909. Length 65 to 93 mm.

7869. Maculabo Island. June
14, 1909. Length 70 mm.

Ten examples. Malcochin Harbor,
Linapacan Island. December 19, 1908.
Length 42 to 65 mm.

Thirteen examples. Mansalay,
Mindoro. June 3, 1908. Length 28 to 57
mm.

16404.
34 examples. Mansalay. June 4, 1908.
Length 48 to 90 mm.

20861. Mantacao Island, west coast
of Bohol. April 8, 1908. Length 31 to
73 mm. Two examples.

Three examples. Maribojoc Bay, ²¹¹⁷
Maribojoc, Bohol. May 26, 1909.
Length 73 to 75 mm.

26 examples. Maricaban Port
off southern Luzon. July 20, 1908.
Length 18 to 90 mm.

Three examples. Masabat Bay,
Dinualasag Island. June 11, 1909.
Length 41 to 77 mm.

24 examples. Masbate Island.
April 20, 1908. Length 28 to 85 mm.

62 examples. Matnog Bay,
Luzon. May 31, 1909. Length 27 to 54 mm.

One example. Mampog Island.
March 3, 1909. Length ^{33 to} 34 mm.

Five examples. Murcielagos Bay.
August 20, 1909. Length 35 to 68 mm.

One example. Nasugbu Bay
anchorage. January 21, 1908. Length
76 mm.

Three examples. Rogas Point, Panay.
February 4, 1908. Length 31 to 48 mm.

2118
One example. Olongapo Anchorage,
Luzon. January 7, 1908. Length 87 mm.

Two examples. Panabutan Bay.
February 5, 1908. Length 22 to 27 mm.

Twelve examples. Pandanon Island.
March 23, 1909. Length 49 to 78 mm.

57 examples. Pandanon Island.
March 24, 1909. Length 28 to 73 mm.

Five examples. Pilas Island.
September 12, 1909. Length 46 to 83 mm.

Seven examples. Port Blair
anchorage, Tanon Strait, east coast
Negros. March 31, 1908. Length 54 to 90
mm.

21629. Port Banalacan, Marinduque.
February 23, 1909. Length 63 mm.

One example. Port Binanga, Luzon.
January 8, 1908. Length 33 mm.

One example. Port Binanga. January
9, 1908. Length 61 mm.

Six examples. Port Galera, Mindoro.
June 8, 1908. Length 37 to 60 mm.

2119

99 examples. Port Galera. June 9,
1908. Length 28 to 100 mm.

Seven examples. Port Jamelo, Luzon.
July 13, 1908. Length 30 to 73 mm.

20148, 20149. Port Matalvi,
Luzon. November 22, 1908. Length
59 to 77 mm. Five examples.

Sixteen examples. Port Matalvi.
November 23, 1908. Length 38 to 60 mm.

Seven examples. Port San Pio
Dunto, Camiguin Island. November
11, 1908. Length 36 to 66 mm.

25 examples. Port Usan west of
Pinas Island. December 17, 1908.
Length 41 to 87 mm.

16405. Rasa Island, Mantaguin Bay,
Palawan. April 1, 1909. Length 78 mm.

Six examples. Rasa Island Anchorage.
June 18, 1909. Length 43 to 58 mm.

→ Sixteen examples. Romblon.
March 25, 1908. Length 24 to 38 mm.

2119

99 examples. Port Galera. June 9,
1908. Length 28 to 100 mm.

Seven examples. Port Jamelo, Luzon.
July 13, 1908. Length 30 to 73 mm.

20148, 20149. Port Matalvi,
Luzon. November 22, 1908. Length
59 to 77 mm. Five examples.

Sixteen examples. Port Matalvi.
November 23, 1908. Length 38 to 60 mm.

Seven examples. Port San Pio
Dunto, Camiguin Island. November
11, 1908. Length 36 to 66 mm.

25 examples. Port Usan west of
Pinas Island. December 17, 1908.
Length 41 to 87 mm.

Three examples. Ragay Bay, Ragay
Gulf, Luzon. March 9, 1909. Length
18 to 61 mm.

One example. Ragay Bay. March
10, 1909. Length 46 mm.

Sixteen examples. Romblon.
March 25, 1908. Length 24 to 58 mm.

becoming broader anteriorly. Anal like
dorsal, blackish posterior part more
pronounced. Caudal with obscure white

2120

Four examples. Romblon. March
26, 1908. Length 43 to 67 mm.

Four examples. Sablayan Bay,
Mindoro. December 12, 1908. Length
39 to 51 mm.

Four examples. Sacol Island,
east of Zamboanga. September 8, 1909.
Length 32 to 39 mm.

8067. Sacol Island. September 9,
1909. Length 85 mm.

154 examples. San Miguel Harbor,
Ticao Island. April 21, 1908. Length
31 to 110 mm.

26 examples. Santa Cruz Island,
Marinduque. April 23, 1908. Length
19 to 67 mm.

D.5573. Simalue Island (N.), S.
60° ^{0.4} ~~13~~ ⁰⁰ ~~13~~ miles (lat. ²⁸ ³⁰ ~~28~~ ³⁰ N., long. 120°
~~13~~ ⁰⁰ ~~13~~ F.), north of Tawi Tawi.
September 23, 1909. Length 30 mm.

12607. Vitanki wharf, Sulu
Archipelago. February 26, 1908.
Length 74 mm.

Two examples. Sulade Island. ²¹²¹
September 17, 1909. Length 52 to 58 mm.

Six examples. Surigao, Mindanao.
May 8, 1908. Length 71 to 86 mm.

One example. Tara Island
anchorage. December 14, 1908. Length
53 mm.

28 examples. Tataan, Simulac
Island, Sulu Archipelago. February
19, 1908. Length 55 to 95 mm.

39 examples. Tataan anchorage.
February 21, 1908. Length 29 to 77 mm.

21 examples. Tataan Passage.
February 20, 1908. Length 44 to 83 mm.

10463. Tilig, Lubang Island.
July 14, 1908. Length 76 mm.

Four examples. Togian Bay,
Togian Island. November 19, 1909.
Length 50 to 73 mm.

35 examples. Tomahu Island.
December 11, 1909. Length 32 to 85 mm.

20738, 20739. Tonguil Island,
east of Gumila Reef, south of
Zamboanga. September 14, 1909.
Length 78 to 80 mm.

Eleven examples. Tumindao Reef,
Sulu Archipelago. February 25, 1908.
Length 70 to 112 mm.

Six examples. Tumindao Reef.
February 26, 1908. Length 40 to 92 mm.

8680, 8681. Tutu Bay, Jolo
Island. September 19, 1909.
Length 90 mm.

157 examples. Varadero Bay,
Mindoro. July 23, 1908. Length
67 to 110 mm.

Three examples. Varadero Harbor.
July 22, 1908. Length 52 to 68 mm.
P. 20625.

Length 43 mm.

Three examples. Gane Road,
Gillolo Island. December 1, 1909.
Length 42 to 81 mm.

Four examples. Limbe Strait,
Celebes. November 9, 1909. Length 30 to
39 mm.

21338 to 21340. Pendik Island,
Butan Strait. December 15, 1909.
Length 78 to 90 mm.

19342 to 19344. Sandakan Bay,
Borneo. March 2, 1908. Length 77 to 80
mm.

One example. Talise Island.
November 8, 1909. Length 85 mm.

21229. Tidore Island, south of
Ternate. November 24, 1909. Length 78 mm.

Six examples. Tugian Bay, Tugian
Island. November 19, 1909. Length 50
to 67 mm.

Atherina microstoma Günther

Atherina microstoma Günther, Cat.
Fish. Brit. Mus., vol. 3, p. 401, 1861
(type locality, Van Dieman's Land.
— Macleay, Proc. Linn. Soc. New
South Wales, vol. 5, pt. 2, p. 39, 1881
copied). — Johnston, Proc. Roy.
Soc. Tasmania, 1882 (1883), p. 122
(reference); 1890 (1891), p. 34
(reference). — Sauvage, Hist.
Nat. Madagascar, Poiss., p. 407, 1891
(reference). — Jordan and Hubbs,
Stanford Public., p. 42, 1919^{mem.}
(Queensland). — McCulloch, Austral.
Mus., vol. 5, pt. 1, p. 108, June 28, 1929
(reference).

14, (Wake Island). — Fowler, Bishop
~~mus. Bull.~~, no. 38, 1927, p. 13 (Fanning
 Island).

? Labrus guaza (part) Lacépède, Hist.
 Nat. Poiss., vol. 3, 1802, p. 501, pl. 27,
 fig. 1.

? Serranus zananella Valenciennes, Hist.
 Nat. Poiss., vol. 2, 1828, p. 304. Fort
 Dauphin, Madagascar (on Lacépède).

? Epinephelus zananella Bleeker, Ned.
 Tijds. Dierk., vol. 1, 1863, p. 344
 (Madagascar).

? Serranus zananella Elera, Cat. Fauna
 Filip., vol. 1, 1895, p. 460 (Mindoro, Cebu,
 Luzon, Cavite).

Serranus pachycentrum (non Valenciennes)
Günther, Cat. Fishes Brit. Mus., vol. 1,
 1859, p. 116 (Ceylon).

Serranus erythraeus (non Valenciennes)
Playfair, Fishes of Zanzibar, 1866, p. 2, pl.

Taeni membras microstoma ~~of the~~
~~Mc Culloch, Proc. Linn. Soc. New South Wales,~~
~~vol. 12, 1882, p. 41, pl. 1, fig. 1.~~
Mc Culloch, Biol. Res. Endeavour,
 vol. 1, p. 32, pl. 10, fig. 2, 1911 (Derwent
 River; Storm Bay, Tasmania).

? Atherina elongata Klunzinger, Vitys.
Ber. Akad. Wiss. Wien, math.-naturw.
 Kl., vol. 80, pt. 1, p. 394, pl. 3, fig. 4, 1879
 (1880) (type locality, King George's Sound).
 — Macleay, Proc. Linn. Soc. New South
Wales, vol. 9, 1884, p. 39 (copied). —
Kent, Great Barrier Reef, p. , 1892
). — Jordan and Hubbs,
Stanford Public., p. 42, 1919 (reference).
 — Mc Culloch and Whitley, Mem. Queensland
Mus., vol. 8, pt. 2, p. 140, July 7, 1925
 (reference). — Mc Culloch, Mem. Austral.
Mus., vol. 5, pt. 1, p. 105, June 29, 1927
 (reference).

Epinephelus sonnerati Boulenger,
 Cat. Fishes Brit. Mus., vol. 1, 1895, p. 187
 (Mauritius, Zanzibar, Seychelles, Muscat,
 Ceylon, Madras, Pelew Islands, Kingmanilla,
 Samou, Australia). — Steindachner,
 Denkschr. Akad. Wiss. Wien, vol. 71, pt. 1,
 1907, p. 124 (Bah Hâf, Socotra). —
Regan, Ann. Natal Mus., 1908, p. 244
 (Durban Bay). — Gilchrist and
Thompson, Ann. South Afr. Mus., vol.
 6, 1908-10, p. 214 (Durban Museum;
 Natal). — Weber, Siboga Exped., vol. 65,
 Fische, 1913, p. 199 (Sanguisapo, Sulu Archipelago;
 Banda). — Barnard, Ann. South Afr.
 Mus., vol. 21, 1927, p. 472 (Natal coast;
 Delagoa Bay).
Cephalopholis sonnerati Seale and
Bean, Proc. U. S. Nat. Mus., vol. 33, 1907,
 p. 243 (Zamboanga). — Fowler and
Ball, Bishop Mus. Bull., no. 26, 1925, p.

2126

Depth $5\frac{3}{4}$ to 7; head 4 to $4\frac{1}{3}$. Snout $4\frac{1}{2}$ in head; eye 3, greater than snout or interorbital; maxillary reaches $\frac{4}{5}$ to eye, length 4 in head; mouth small; teeth minute, several rows in jaws anteriorly, none on sides or palatines, well developed patch on vomer, palatines toothless; interorbital nearly level. Gill rakers 15, short, stout, longest less than $\frac{1}{3}$ of eye.

Scales 38 to 40 in lateral series, 8 transversely, 15 or 15 predorsal forward to nape. Scales large, cycloid, concentrically striated.

D. VII or VII - 10 or 11, third spine $2\frac{1}{5}$ in head, first branched ray 2; A. 11 or 12, first branched ray 2; caudal $1\frac{1}{10}$, emarginate; least depth of caudal peduncle 4; pectoral $1\frac{3}{4}$, rays 13 or 14; ventral rays I, 5, fin 2 in head.

2/27

Whitish in formalin with
broad dark silvery lateral band
along fourth row of scales. Head
and back above densely spotted
with minute olive green dots,
which also border scales of body
above lateral band and sometimes
below. Fins with more or less
numerous dots scattered on rays.
Length 63 mm. (Mc Culloch.)

Western Australia?, Tasmania,
New South Wales, Queensland.

2128

Atherina bleekeri Günther

Atherina bleekeri Günther, Cat. Fish.
Brit. Mus., vol. 3, p. 318, 1861
type locality, China. — Martens,
Preuss. Exped. Ost Asien, vol. 1,
p. 395, 1876 (Nagasaki). —
Steindachner and Döderlein, Denks.
Akad. Wiss. Wien, Math.-naturw.
Kl., vol. 49, pt. 1, p. 267, 1885
(Tokyo). — Elera, Cat. Fauna
Filipinas, vol. 1, p. 536, 1895
(Luzon; Manila). — Jordan and
Snyder, Annot. Zool. Japon., vol. 3,
p. 61, 1901 (on Steindachner's Tokyo
records). — Jordan and Starke,
Proc. U. S. Nat. Mus., vol. 24, 1901,
p. 201 (Tsuruga, Tokyo, Misaki,
Wakasaoura, Kumata, Hakata,

9687. Uki, Bouru Island. December 9, 1909. Length 195 mm.

2 examples of Tomahu Island. December 12, 1909. Length 36 to 44 mm.
12922, 13425, 13426, 13428, 22225.

Buka Island, Gulf of Tomini, Celebes.
November 20, 1909. Length 70 to 148 mm.

18339. West of Malibagu Point, Celebes.
November 21, 1909. Length 155 mm.

8712. Una Una Road, Binang Unang
Island, Gulf of Tomini, Celebes.
November 17, 1909. Length 152 mm.

13220 to 13222, 21477, 21479. Dowarra
Island. December 2, 1909. Length 65 to
169 mm.

9985. Maitara Island. November 26, 1909.
Length 107 mm.

12470, 13122, 13837. Powati Harbor,
Makyan Island. November 26, 1909.
Length 89 to 145 mm.

3 examples. Kayoa Island, between Gillolo
and Kayoa Islands. November 29, 1909. Length 51 to 80 mm.

kyasabi, Kiusiu). — Franz,
Abhand. Kon. Bayer. Akad. Wiss.,
vol. 4, Suppl. band 1, p. 25, 1910
(Yayami Bay; Aburatsubo). —
Jordan, Tanaka, Snyder, Journ.
College Sci. Tokyo, vol. 33, p. 111,
1913 (reference). — Seale,
(Philippine Journ. Sci., vol. 9, p.
60, 1914 (Hong Kong). — Jordan
and Hubbs, Stanford Public.,
p. 40, 1914 (reference). — Tirant,
Sew. Océan. Pêch. Indo Chien,
p. 171, 1929 (Indo China). —
Schmidt, Bull. Acad. Sci. U. S. A.
N., 1930, p. 107 (kyasabi; Hong
Kong); Trans. Pac. Comm. Acad.
Sci. U. S. A., 1931, p. 36 (kyasabi).
— Anonymous, Illustrat. Jap.
Aquat. Plant. Animals, vol. 1, pl.
22, fig. 3, 1931.

22309. Tidore Island. November
24, 1909. Length 68 mm.

2 examples. Tomahu Island. December 12, 1909.
Length 38 to 45 mm

The following represent the var. zanana.

9956. Doc Can Island, Sulu Sea. January
7, 1910. Length 125 mm.

19006, 19007, 21902. Tapiantana Island,
south of Zamboanga. September 13, 1909.
Length 125 to 132 mm.

6654, 6655, 7924. Tutu Bay, Jolo Island,
first anchorage. September 19, 1909.
Length 160 to 183 mm.

6906 and 6907. Danawan and Si Amil
Islands, vicinity Darvel Bay, Borneo.
September 26, 1909. Length 151 to 165 mm.

17576. Danawan and Si Amil Islands.
September 27, 1909. Length 140 mm.

8944. Mabul Island, off Borneo.
September 29, 1909. Length 114 mm.

Atherina japonica (not Houttyn)
Bleeker, Verh. Batavia Genoot.
 hal. Ich. Japan), vol. 25, p. 15,
 1853 (reference); (hal. Ich. Japan),
 vol. 26, p. 5, pl. (9) fig. 2, 1857
 Nagasaki; Act. Soc. Sci. Ind.
 Néerl., vol. 3, no. 3, p. 6, 1857-58
 (Japan); Ned. Tijds. Dierk.,
 vol. 4, p. 142, 1873 (1874) (reference).
 — Chevey, Inst. Océanogr. Indo
 Chine, 19^e note, p. 11, August 25,
 1932 (Indo China).

Atherina valenciennesi (not Bleeker)
Nyström, Kon. Vensk. Vet. Akad.
 Bih.
 Handl., 1887, ^{pt. 4,} ho. 4, p. 38 (Nagasaki).

16230. Cape Kait, Libani Bay, Celebes.
~~December 27, 1909.~~ Length 104 mm.

13644. Una Una Road, Binang.
 Unang Island, Celebes. November 18, 1909.
 Length 115 mm.

18331, 18333 to 18336, 18338. West of
 Malibagu Point, Celebes. November 21, 1909.
 Length 91 to 129 mm. [Sk. 2061.]

9703,
 22855. Talise Island, north of Celebes.
 November 9, 1909. Length 107^{to 118} mm.

21491. Gane Road, Gillolo Island.
 December 1, 1909. Length 112 mm.
 3 examples. heightura Island. November 26, 1909. Length 60 to 62 mm.
 13219. Dowarra Island, Tante Strait.

December 2, 1909. Length 111 mm.

19788. Gamamo Island, Pitt Passage.
 December 3, 1909. Length 75 mm.

13545. Makyan Island. November 29, 1909.
 Length 118 mm.

21548. Gilore Island, south of Ternate.
 November 25, 1909. Length 100 mm.

Depth $5\frac{3}{4}$; head $4\frac{1}{2}$. Snout 4 in head; eye 3; maxillary reaches $\frac{1}{5}$ in eye, length $2\frac{3}{4}$ in head; jaws about equal; teeth very small, in bands in jaws and on vomer; interorbital little greater than eye. Lower gill rakers 19, little less than pupil.

Scales 45 in lateral series; 7 transversely, 20 predorsal, interdorsal 8. Scales on head above, behind and below eye, head otherwise naked. Fins scaleless. Scales obtusely denticulated.

D. VI - I, 10, first dorsal origin before second dorsal origin space equal $1\frac{1}{4}$ in head, soft dorsal origin over first third of anal base; A. I, 13; pectoral reaches slightly past ventral origin; ventral inserted nearer front of anal base

than snout tip by space equal to eye diameter.

Scales of back broadly edged with blackish to dusky. Top of head and snout tip black.

Mandible tip dusky or colorless.

Lateral band silvery, dark above, occupies nearly entire third and upper half of fourth series of scales below median series of back. Dorsals and caudal dusky. Pectoral dusky at base. Ventral and anal colorless. Length 173mm.

(Jordan and Starbuck)

Japan.

2133

Atherina tamarensis Johnston

Atherina tamarensis Johnston, Proc.
Roy. Soc. Tasmania, 1882 (1883), p.
122, type locality, Launceston Bar,
Tamar River, Tasmania). — Jordan
and Hubbs, Stanford Public., p.
43, 1919 (reference). — McCulloch,
Mem. Austral. Mus., vol. 5, pt. 1,
p. 108, June 29, 1929 (reference).

Taeniomenbras tamarensis McCulloch
and Waite, Rec. South Austral.
Mus., vol. 1, p. 41, 1918.

9481. Guntao Island, Palawan
Passage. December 20, 1908. Length 216
mm.

4860. Jolo market. February 12, 1908.
Length 303 mm.

18582. Malanipa Island, east of
Zamboanga. September 8, 1909. Length
158 mm.

11123 and 11260. Pasacao Island,
Ragay Gulf, Luzon. March 9, 1909.
Length 130 to 212 mm.

8203 and 8204. Port Busin, Burias
Island. March 8, 1909. Length 243 to 283 mm.

11040. Port Maricaban, southern Luzon.
July 21, 1908. Length 186 mm.

7343. Tara Island, Mindoro Strait.
December 14, 1908. Length 255 mm.

4954. Tawi Tawi Group, Sulu Archipelago.
February 21, 1908. Length 325 mm.

Atherina tasmaniensis Macleay,
Proc. Linn. Soc. New South Wales,
vol. 9, - August 19, 1884, p. 443
Tasmania) (misprint for
tamarensis).

Atherinichthys cephalotes (not
Castelnau) Geitz, Trans. Roy. Soc.
South Australia, vol. 33, 1909, p.
264.

Red Sea, Zanzibar, Mozambique,
Natal, Mauritius, Madagascar,
India, Ceylon, Andamans, East
Indies, Philippines, Melanesia,
Micronesia, Polynesia. A handsome
species and variable. Cephalopholis
maculatus Seale and Bean and
C. boninius Jordan and Richardson
are only slight variants.

8132 and 8133. Alibijaban Island,
Ragay Gulf, Luzon. March 6, 1909.
Length 261 to 356 mm.

13503, 13710, 17708, 17769, 18271. Alimango
Bay, Burias Island. March 5, 1909.
Length 155 to 225 mm.

8276 and 8281. Canmahala Bay, Luzon.
March 11, 1909. Length 275 to 355 mm.

21589. Guineyan Island, east coast
Luzon. June 4, 1909. Length 180 mm.

2135

Body somewhat compressed. Eye 3
in head, slightly longer than snout.
Mouth cleft oblique. Teeth minute.
Branchiostegals 7.

Scales 42 in lateral series; 9
transversely. Scales cycloid.

D. VIII - I, 11, first dorsal origin
in vertical line behind ventral;
A. I, 10 or 11; pectoral rays 13;
ventral rays I, 5.

Silvery lateral band, 3. series
of scales above. Length not
given. (Johnston.)
Tasmania.

Atherina presbyteroides Richardson

Atherina presbyteroides Richardson,
Ann. Mag. Nat. Hist., vol. 11, p. 177,
March 1843 (type locality, Port
Arthur, Tasmania). — Günther, Cat.
Fish. Brit. Mus., vol. 3, p. 377, 1860
(copied). — Macleay, Proc. Linn. Soc.
New South Wales, vol. 5, pt. 2, 1881,
p. 37 (copied). — Fowler, Proc. Acad.
Nat. Sci. Philadelphia, 1907, p.
425 (Victoria). — Jordan and Hubbs,
Stanford Public., p. 43, 1919 (reference).
— McCulloch, Mem. Austral. Mus.,
vol. 5, pt. 1, p. 107, June 29, 1929
(reference).

17268. Tayabas River, Marinduque Island. February 25, 1909. Length 157 mm.

6485 and 6486. ^{Lubang Island,} Tilig, ^{vicinity} southern Luzon. July 15, 1908. Length 207 to 277 mm.

A467 and A468. Tubnalutan Island, east of Zamboanga. September 9, 1909. Length 245 to 246 mm.

A570 and 6648. Tutu Bay, Jolo. September 19, 1909. Length 200 to 270 mm.

6635. Varadero Bay, Mindoro. July 23, 1908. Length 300 mm.

5932. Zamboanga market. May 25, 1908. Length 277 mm.

17575. Danawan Island, vicinity Marwel Bay, Borneo. September 27, 1909. Length 142 mm.

2137

Depth $6\frac{1}{4}$?; head $4\frac{2}{5}$, width $1\frac{7}{8}$.
Snout $3\frac{3}{4}$ in head from snout
tip; eye $2\frac{4}{5}$, greater than snout or
interorbital; maxillary reaches
 $\frac{1}{5}$ in eye, length $2\frac{1}{2}$ in ^{from snout tip} head;
mandible protruding, rami
elevated little inside mouth; teeth
in narrow bands in jaws, short
narrow band across vomer;
interorbital $3\frac{1}{3}$ in head from snout
tip, flat. Gill rakers?

Scales 45? in lateral series; 9?
transversely. Head and caudal base
scaly, otherwise fins naked. Scales
cycloid, narrowly exposed.

D. IX - I, I, 10, I, spinous dorsal
length $2\frac{1}{4}$ in total head, first
branched ray $2\frac{1}{4}$; A. I, I, 12, I, origin
little before soft dorsal origin;
least depth of caudal peduncle 4;
pectoral $1\frac{1}{3}$; ventral $1\frac{1}{2}$; vent
opposite base of last dorsal spine.

Brownish. Silvery band 2 or 3
scales distant from dorsal ridge
of back, from shoulder to caudal
base, rather narrow after rayed
dorsal and anal and bounded
by narrow leaden line along
upper edge. Sides of head and
iris silvery. Fins pale brown.

~~Length 50 mm. (caudal)~~

Tasmania, Victoria.

A. N. S. P., one example. Victoria.
Mrs. Agnes F. Kenyon. 1907. Length
50 mm. (caudal damaged).

2139

Atherina woodwardi Jordan and Starks

Atherina woodwardi Jordan and Starks,
Proc. U. S. Nat. Mus., vol. 24, p. 200,
fig. 1, 1901 (type locality, Obinawa,
Riu Kiu). — Snyder, Proc. U. S.
Nat. Mus., vol. 42, p. 495, 1912
(reference). — Jordan and Hubbs,
Stanford Public., p. 41, 1919
(reference).

Atherina pinguis (not Lacépède)
Ishikawa, Prelim. Cat. Fish. Mus.
Tokyo, p. 33, 1897 (reference).

Boulenger, mainly in the scale counts, though it should be noted that Fowler's scale - counts, especially that of the scales in a transverse direction, are often considerable greater than those of Boulenger and other authors. These counts are, however, probably not greater than counts which may be made from the materials of "Boulenger and other authors" provided they are counted above the lateral line to the origin of the spinous dorsal and below the lateral line to the origin of the spinous anal, as this is the way they are made in the present work. In this case the matter is simply a method of counting, and one which we have found most satisfactory. The count of the scales in the lateral line is another

Depth $5\frac{1}{3}$; head $4\frac{1}{4}$. Snout $4\frac{3}{4}$ in head from snout tip; eye $2\frac{2}{3}$, greater than snout; maxillary reaches $\frac{1}{8}$ in eye, length $2\frac{3}{4}$ in head from snout tip; teeth very small, in narrow bands in jaws and on vomer; interorbital nearly level. Gill rakers $6+16$, slender, $\frac{1}{2}$ of eye.

Scales 40 in lateral series; 6 transverse, 15 predorsal, 7 interdorsal. Scales with entire edges.

D. V — I, 10, second spine $2\frac{2}{5}$ in total head length, first branched ray 2; A. I, 12, first branched ray $1\frac{7}{8}$; caudal $1\frac{2}{7}$, emarginate; least depth of caudal peduncle $3\frac{1}{5}$; pectoral $1\frac{1}{4}$; ventral $1\frac{4}{5}$.

Probably silvery. Back sparsely covered with coarse brown dots, set more or less in rows. Rather

narrow silvery lateral band,
bordered with black above and
nearly confined anteriorly to third
row of scales below superior
median series, posterior $\frac{2}{5}$
slightly wider, front end not
exposed over upper pectoral edge.
Snout tip dusky, with brown
spots. Opercles silvery. Length
about 65 mm. (Jordan and Starks.)
Rui Kiu.

2142

Atherina tsurugae Jordan and Starks

Atherina tsurugae Jordan and Starks,
Proc. U. S. Nat. Mus., vol. 24, p.
202, fig. 2, 1901 (type locality,
Hayasiki; Hizen. — Tanaka,
Fishes of Japan, vol. 9, p. 161, pl.
42, fig. 166, pl. 43, fig. 161
— Jordan, Tanaka, Snyder, Journ.
College Sci. Tokyo, vol. 33, p. 112, 1913
reference). — Jordan and Hubbs,
Stanford Public., p. 41, pl. 2, fig. 7,
1917 reference). — Schmidt, Bull.
Acad. Sci. U. S. N. M., 1930, p. 542
(Akinawa), p. 1138 (Tsuruga).

1927, p. 474 (Natal coast).

Cephalopholis miniatus Fowler,

Proc. Acad. Nat. Sci. Phila., 1907, p.

252 (Padang examples). — Jordan

and Richardson, Bull. Bur. Fisher.,

vol. 27, 1907 (1908), p. 256 (Calayan).

— Fowler, Proc. Acad. Nat. Sci. Phila.,

1925, p. 221 (Natal); Bishop Mus.

Bull., no. 38, 1927, p. 13 (Fanning Island).

Pomacentrus burdi Lacépède, Hist. Nat.

Poiss., vol. 4, 1802, pp. 506, 510. Arabia.

Serranus cyanostigma (non Valenciennes

1828) Valenciennes, Règne Animal Ill.

Cuvier, 1836, pl. 8, fig. 2.

Perca maculata (Forster) Lichtenstein,

Descr. Animal., 1844, p. 220. St. Christian

Island, Waitako. (not Perca maculata

Linnaeus).

Serranus cyanostigmatoides Bleeker,

Verh. Batav. Genootsch. (Percoid.), vol. 22,

Depth 5 to 6; head $4\frac{2}{3}$ to $4\frac{3}{4}$, snout $3\frac{1}{4}$ to 4 in head; eye $2\frac{2}{3}$ to $2\frac{3}{4}$, greater than snout or interorbital; maxillary reaches $\frac{1}{5}$ or $\frac{1}{4}$ in eye, length $2\frac{1}{3}$ to 3 in head; teeth in narrow band in each jaw, small patch on vomer, none on palatines; interorbital $2\frac{1}{2}$ to 3, level. Gill rakers $7+22$, $\frac{1}{3}$ longer than gill filaments or 2 in eye.

Scales 48 or 49 in lateral series to caudal base; 9 or 10 transverse, 22 predorsal forward to head, 1 row on cheek. Each scale with basal knob and close set fine vertical basal striae.

D. V or VI—I, 9 to 12, first spine $2\frac{1}{2}$ to $2\frac{3}{5}$ in head, first branched ray $2\frac{1}{4}$ to $2\frac{1}{3}$; A. I, 12 to 14, first branched ray $2\frac{1}{5}$ to $2\frac{1}{3}$; caudal $1\frac{1}{5}$ to $1\frac{1}{4}$, forked; least depth of caudal peduncle $3\frac{2}{3}$ to $3\frac{3}{4}$; pectoral

$1\frac{1}{3}$ to $1\frac{2}{5}$; ventral $1\frac{7}{8}$ to $2\frac{1}{5}$.

Brownish, paler below, sides and under surface largely silvery white. Back speckled and dotted with dusky or deep brown. Snout and head above dotted with dusky. Iris silvery white. Lead line from shoulder to caudal base medially and below broad silvery white band parallel, nearly wide as eye. Dorsals, caudal and pectoral specked with dusky.

Japan.

A. N. S. P., two examples. Tsuruga,
Echizen, Japan. Stanford University.
Length 114 mm.

in

4.

S. 1 mile

13° 12' N., 145° 50'

East Co

Strait to X1

Litherna mayiloides McCulloch

Litherna mayiloides McCulloch,
Proc. Roy. Soc. Queensland, vol. 24,
p. 47, text fig. 1 (on de Vis, August
21, 1912 (type locality, Cape York)).

— Jordan and Hubbs, Stanford
Public., p. 44, 1919 (reference). —

McCulloch and Whitley, Mem.

Queensland Mus., vol. 8, pt. 2, p. 143,

July 7, 1925 (reference). — McCulloch,

Mem. Australian Mus., vol. 5, pt. 1,

p. 108, June 21, 1929 (reference
Queensland).

Lithernichthys punctatus (not
Litherna punctata Bennett) de Vis,
Proc. Linn. Soc. New South Wales, vol. 7,
pt. 2, p. 801, March 4, 1885 (Cape York).

Cephalopholis sommerati (Valenciennes).

Serranus sommerati Valenciennes, Hist. Nat. Poiss., vol. 2, 1828, p. 299. Pondicherry and Ceylon. — Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 122 (Sumatra and Louisades). — Playfair, Fishes of Zanzibar, 1866, p. 3 (non pl. 3 fig. 1). — Day, Fishes of India, pt. 1, 1875, p. 25, pl. 7, fig. 1 (Madras). — Károli, Termesz. Füzetek, Budapest, vol. 5, 1882, p. 147 (Palaboen, Java). — Day, Fauna Brit. India, vol. 1, 1889, p. 457, fig. 142 (east coast of Ceylon and Madras). — Boulenger, Proc. Zool. Soc. London, 1889, p. 238 (Muscat). — Fowler, Proc. Acad. Nat. Sci. Phila., 1925, p. 223 (Katal).

Serranus (Epinephelus) sommeratii

Zugmayer, Abhandl. Bayer. Akad. Wiss., vol. 26, pt. 6, 1913, p. 9 (Oman).

Depth $5\frac{1}{4}$ to $5\frac{3}{4}$; head $3\frac{4}{5}$ to 4.

Snout $3\frac{1}{2}$ in head; eye $2\frac{1}{2}$ to $2\frac{2}{3}$, greater than eye, equals or greater than interorbital; maxillary reaches $\frac{1}{4}$ in eye, length $2\frac{1}{3}$ in head; teeth minute, slender, acute, apparently biserial above, uniserial below, confined to front and anterior sides of jaws, palate and tongue toothless; interorbital apparently level. Gill rakers long, slender.

Scales 33 or 34 in lateral series; 6 transversely, 10 or 12 predorsal to head, 9 between first spines of two dorsals.

D. V or VI - I, 7 or 8, second spine 2 in head, first branched ray 2; A. I, 9 or 10, first branched ray 2; caudal ?; least depth of caudal peduncle $2\frac{3}{4}$; pectoral $1\frac{2}{5}$, rays 12 or 13; ventral rays I, 5, fin $1\frac{4}{5}$ in head.

Colorless in alcohol. Silver
lateral band broad. Cheeks and
opercles silver. Upper parts with
scattered minute black specks.
Length 35 mm. (McCulloch.)
Queensland.

Atherina melanostigma Day

2149

Atherina melanostigma Day, Fishes
of India, pt. 2, p. 345, 1876 (type
locality, Madras); Fauna British
India, Fishes, vol. 2, p. 339, 1889. —
Jordan and Hubbs, Stanford Public,
p. 44, 1919 (reference).

1, fig. 1 (Seychelles).

Epinephelus janthinopterus Bleeker,
Verh. Akad. Wet. Amsterdam, vol. 14,
no. 2, 1874, p. 40. Macassar, Celebes;
Atlas Ichth. Ind. Néerl., vol. 7, 1873-76,
p. 36 (Celebes); vol. 8, 1876-77, pl. (54)
332, fig. 5.

Serranus leopardus (part) Steindachner,
Journ. Mus. Godeffroy, vol. 1, pt. 1, 1873,
p. 4.

width slightly less than length without snout. ^(2/50)

Depth $5\frac{1}{4}$ in total; head $4\frac{1}{3}$,
snout 5 in head; eye $2\frac{1}{2}$, twice
snout, equal interorbital; mouth
cleft very oblique, lower jaw
broad anteriorly and little shorter
than upper; maxillary reaches
below front eye edge; teeth in
jaws minute, none on vomer or
palate.

Scales 37 in lateral series; 7
transversely, 16 predorsal. Scale
edges little rough.

D. V - I, 10, spines feeble, first
dorsal origin midway between
ventral bases and anal, hind
edge of opercle half way between
snout and dorsal fin base;
A. I, 13; caudal rays 17; pectoral
rays 17; ventral rays I, 5.

Well marked silvery band on
third row of scales. Many fine
dots along back, especially on

scale edges and fewer in lower half of body. Dark spot on upper eye edge, another at upper edge of caudal base, which also dark posteriorly. Dark line along scales at anal base. Length 75 mm. (Day.)

India.

6693. Hong Kong market. August
13, 1908. Length 285 mm. Pink,
silvery below. Back and upper side
with numerous pale specks. Fins
like body.

6806. Kowloon market. September
18, 1909. Length 210 mm.

86443 U.S. N.M. China. A. de C.
Sowerby. Length 270 mm.

1 example U.S. N.M. China. A. de C.
Sowerby. Length 230 mm.

12326 A.N.S.P. Hawaiian Islands.
Dr. J. K. Townsend. Length 205 mm.

1 example. A.N.S.P. Bombay, India.
Prof. F. Hallberg. Length 328 mm.

Atherina breviceps Valenciennes

Atherina breviceps Valenciennes,
 Hist. nat. Poiss., vol. 10, p. 445,
 1835 type locality, Cape of Good Hope.
 — Bleeker, Nat. Tijds. Ned. Indië,
 vol. 21, p. (50, 54, 68, 1860 (Cape of
 Good Hope). — Günther, Cat. Fish.
Brit. Mus., vol. 3, p. 395, 1860
 (Cape of Good Hope). — Sauvage,
 Hist. nat. Madagascar, Poiss.,
 p. 407, 1871 (reference). — Jordan
 and Hubbs, Stanford Publ., p. 40,
 1919 (reference). — Barnard, Ann.
South Afric. Mus., vol. 21, pt. 1, p.
 298, June 1925 (Port Nolloth,
 Table Bay, False Bay, East London).

11308, 15241 to 15245, 15247. Near Palag
Bay, southern Luzon. June 16, 1909.
Length 77 to 126 mm.

21562. Pulas Island, south of Zamboanga.
September 12, 1909. Length 63 mm.

11023. Fort Maricaban, southern Luzon.
July 21, 1908. Length 154 mm.

5062 and 5063. Port Matulvi, western
Luzon. November 23, 1908. Length 115 to 138 mm.

4613, 14257, 14613. Port Palapag, east
Luzon. June 3, 1909. Length 90 to 120 mm.

24179. Rapurapu Island, east Luzon.
June 22, 1909. Length 102 mm.

16879. Sablayan, Mindoro. December 12,
1908. Length 126 mm.

6420. Sulade Island, vicinity of Jolo.
September 17, 1909. Length 120 mm.

19005, 19232, 19233, 22265. Tapanzana Island,
south of Zamboanga. September 13, 1909.
Length 107 to 143 mm.

Letharina parvipinnis Valenciennes,
Hist. nat. Poiss., vol. 10, p. 446,
1835 (type locality, Cape of Good Hope).
— Bleeker, Nat. Tijds. Ned. Indië,
vol. 21, p. 54, 1860 (reference). —
Günther, Cat. Fish. Brit. Mus.,
vol. 3, p. 396, 1860 (copied). — Sauvage,
Hist. nat. Madagascar, Poiss., p.
(407) 408, pl. 43, fig. 3, 1891
(Madagascar). — Jordan and Hubbs,
Stanford Public., p. 40, 1917
(reference).

5683 and 7680. Agajo Point,
Catanduanes Island, east Luzon.

June 10, 1909. Length 111 to 126 mm.

18933. Batan Island, east Luzon.

June 5, 1909. Length 111 mm.

15450. Bolinao Bay, west Luzon.

May 10, 1909. Length 125 mm.

9031. Bongao Anchorage, Sulu
Archipelago, Tawi Tawi Group. February
24, 1908. Length 123 mm.

10782. Dalanganem Island, eastern
Palawan. April 8, 1909. Length 125 mm.

22041 and 22042. Magnad, Lagonoy
Gulf, Luzon. June 17, 1909. Length 85 to 102 mm.

11377. Maricaban Island, Luzon. January
20, 1908. Length 129 mm.

2154

Depth $4\frac{3}{4}$ to $5\frac{1}{4}$; head $4\frac{1}{4}$ to 5.

Eye 3 to $3\frac{1}{2}$ in head, subequal to slightly longer than snout, equal interorbital; teeth distinct in jaws and on vomer; interorbital low.

Scales 45 to 49 in lateral series; 10 transversely, 23 to 25 predorsal, 7 to 9 interdorsal. No pits on scales of lateral series.

D. VI or VII - I, 13 or 14, first dorsal begins opposite or slightly before vent, according to latter almost midway between ventral and anal or distinctly nearer ventral; A. I, 16 to 18, origin little before soft dorsal origin; pectoral moderate, nearly median in depth, $1\frac{1}{2}$ in head; ventral small, scarcely or just reach vent.

Pale silvery, with more or less distinct black specks on

2155
back. Lateral stripe brilliant
silvery, wide as pupil. Length 110
mm. (Barnard.)

South Africa.

2156

Atherina dunnevigii McCulloch

Atherina dunnevigii McCulloch,
Biol. Res. Indeavour, vol. 1, p. 31,
pl. 16, fig. 2, December 22, 1911 (type
locality, Spencer Gulf, South Australia,
20 fathoms; Cyster Bay, Tasmania).
— Jordan and Hubbs, Stanford
Public, p. 43, 1919 (reference). —
McCulloch, Mem. Austral. Mus., vol.
5, pt. 1, p. 108, June 29, 1929 (reference).

Atherina hepsetus (not linnaeus) Günther,
Ann. Mag. Nat. Hist., ser. 4, vol. 17, p.
396, 1876.

1075

all more or less finely scaled basally;
body scales without fine auxiliary
basal scales. Scales with 6 to 10
basal radiating striae, 38 to 51
apical denticles with 4 to 6 transverse
series and circuli fine. D. IX, 14, I or
15, I, fourth spine $2\frac{7}{8}$ to $3\frac{1}{10}$ in total
head length, twelfth ray $2\frac{1}{5}$ to 3;
A. III, 9, I, second spine $2\frac{4}{5}$ to 3, third
ray $1\frac{9}{10}$ to $2\frac{2}{5}$; caudal $1\frac{3}{5}$ to $1\frac{7}{8}$,
convex behind; least depth of caudal
peduncle $3\frac{1}{4}$ to $3\frac{1}{3}$; pectoral $1\frac{1}{4}$ to $1\frac{1}{3}$;
ventral $1\frac{7}{8}$ to 2.

In alcohol light brown generally,
finely spotted with darker, appearing
rather as mottlings and most
distinct on head. One or 2 dusky

2157

Depth $6\frac{1}{2}$ to $7\frac{1}{3}$; head 4 to $4\frac{1}{3}$. Snout 3 in head from snout tip; eye 3 to $3\frac{1}{2}$, subequal to longer than snout, equals interorbital; mouth oblique, gape reaches almost or to orbit; maxillary reaches $\frac{1}{3}$ in eye; teeth exceedingly minute, in jaws, on vomer and palatines; interorbital flat. Gill rakers 16 below, $\frac{1}{2}$ eye, slender.

Scales 73 to 75 in lateral series; 24 transverse, 39 predorsal, 3 rows on cheek. Caudal base scaly.

D. VIII or IX - I, 11, fourth spine $2\frac{1}{5}$ in total head length, second ray 2; A. I, 12 or 13, third ray 3; caudal $1\frac{1}{3}$, concave behind; least depth of caudal peduncle $4\frac{1}{2}$; pectoral $1\frac{1}{3}$, rays 13 or 14; ventral I, 5, fin 2.

Sandy yellow, each scale of back edged with row of minute brown dots. Silvery lateral band wider than row of scales it covers, uniformly dotted with minute brown specks, defined or not by black line above. Length 85 mm. (McCulloch.)

South Australia.

vol. 20, p. 833, 1870 (Red Sea). —

Day, Fishes of India, pt. 2, p. 344, 1876.

— Alleyne and Macleay, Proc. Linn. Soc. New South Wales, vol. 1, p. 339, 1876 (Hall Sound, New Guinea).

— Martens, Preuss. Exped. Ost Asien, vol. 1, p. 395, 1876 (Amboina River). — Castelnau, Proc. Linn. Soc. New South Wales, vol. 3, p. 353, 1878 (Port Jackson). — Schmeltz, Cat. Mus. Godeffroy, no. 7, p. 50, 1879 (South Seas). — Kirk, Proc. New Zealand Inst., vol. 12, p. 309, fig., 1880 (Wellington). — Macleay, Proc. Linn. Soc. New South Wales, vol. 5, pt. 2, p. 38, 1881 (Port Jackson, South Australia). — Klunzinger, Fische Roth. Meer., p. 130, pl. 11, fig. 2, 1884. — Pöhl, Cat. Mus. Godeffroy, no. 9, p. 34, 1884 (South Seas). —

caudal base; 9 scales above
lateral line, 9 below, about
24 predorsal forward to snout
end of which 11 to occiput.

Scales larger on head above.
Vertical fins all finely scaled.

Scales with 7 or 8 nearly parallel
marginal striae; circuli
concentric, fine, little more separated
or coarser apically.

D. $\overline{\text{X}}$, 25, $\overline{\text{I}}$, third spine 2 in
head, soft fin height $2\frac{3}{4}$; A.
 $\overline{\text{II}}$, 7, second spine $2\frac{2}{5}$, second
ray $1\frac{4}{5}$; caudal 1, ends in median
point behind; least depth of
caudal peduncle $3\frac{1}{5}$; pectoral
 $1\frac{3}{5}$, rays $\overline{\text{I}}$, 15; ventral $1\frac{1}{2}$, fin
 $\overline{\text{I}}$, 5.

Dull gray brown above,
paler to whitish below. Whole

Day, Fauna British India, vol. 2,
p. 338, 1889. — Sauvage, Hist.
Nat. Madagascar, Poiss., p. (407)
409 (522), 1891 (Madagascar). —
Hutton, Ich. Fauna New Zealand,
p. 46, 1904. — Borsieri Ann. Mus.
Civ. Stor. Nat. Genova, ser. 3, vol.
1, p. 213, 1904 (Mussana). —
Waite, Rec. Canterbury Mus., vol. 1,
No. 4, p. 318, December 28, 1912
(reference). — Ogilby, Mem.
Queensland Mus., p. 38, pl. 12,
fig. 1, November 12, 1912 (Moreton
Bay). — Weber, Siboga Exped.,
vol. 57, Fische, p. 135, 1913 (Flores;
Ambon). — Beaufort, Bijdr. Dierk.
Amsterdam, vol. 19, p. 105, 1913
(Laonets, Waigiu). — Pellegrin,
Bull. Soc. Zool. France, vol. 39, p.

Synagris tolu (Valenciennes)

Four, 142 to 156 mm., Bangkok.

Sciaenidae

Otolithoides siamensis, new species.

Figure 121.

Depth $4\frac{1}{4}$; head $3\frac{1}{3}$, width $1\frac{3}{4}$.
Snout 4 in head; eye $5\frac{1}{4}$, $1\frac{2}{5}$ in
snout, $1\frac{1}{2}$ in interorbital;
maxillary reaches $\frac{3}{4}$ in eye, length
from snout tip $2\frac{2}{5}$ in head;
teeth in villiform bands in jaws,
transversely 3 or 4, uniform;
interorbital $3\frac{1}{2}$, broadly convex;
bones of head all more or less
cavernous, covered with soft skin.
Gill rakers 9 + 16, short, $\frac{1}{2}$ of
gill filaments, which $1\frac{3}{5}$ in eye.

Scales about 56 close along above
lateral line to caudal base;

223, 1914 (Fort Dauphin, Madagascar)²¹⁶².
— Gilchrist and Thompson, Ann.
Durban Mus., vol. 1, pt. 4, p. 311,
1917 (reference). — Weber, Zool.
Med. vol. 6, pt. 1, p. 52,

1921 (
— Borodin, Bull. Vanderbilt Marine
Mus., vol. 1, art. 3, p. 76, 1932
(Surabaya, Java).

distinguished from Campylus
cinerus by its snout tip, high
in profile or level with upper
edge of eye. Other characters
are the anal lobe but slightly
longer than the dorsal and
pectoral fin moderate.

- (Σιποτρώωντος snub-nosed

Leiognathidae

Leiognathus splendens (Cuvier)

Three, 120 to 124 mm., Bangkok

Three, 34 to 49 mm., Silom Canal
Bangkok.

Leiognathus blochii (Valenciennes)

One, 99 mm., Bangkok; three,
64 to 68 mm., Sriracha, Inner
Gulf of Siam.

Chandidae

Ambassis kopsii Bleeker

Three, 72 to 88 mm., Sriracha.

Hepsetia pinguis Jordan and Hubbs,
 Stanford Public., p. 32, 1919
 (Suez). — McCulloch and Whitley,
 Mem. Queensland Mus., vol. 8, pt.
 2, p. , July 7, 1925 (reference).
 — Barnard, Ann. South Afric.
 Mus., vol. 21, pt. 1, p. 299, June 1925
 (Katal; Zululand). — Fowler,
 Mem. Bishop Mus., vol. 10, p. 120,
 1928 (compiled). — McCulloch,
 Mem. Austral. Mus., vol. 5, pt. 1,
 p. 109, June 29, 1929 (reference). —
Fowler, Mem. Bishop Mus., vol. 11,
 no. 5, p. 324, 1931 (Port Moresby,
 New Guinea).

Ambassis wolffii Bleeker.

Two, 76 to 100 mm., Bangkok.

Scales $42 + 3$.

Lutjanidae

Lutjanus lineolatus (Rüppell).

Five, 147 to 158 mm., Bangkok.

Pomadasyidae

Caesio cuning (Bloch).

Two, 225 to 253 mm., Bangkok.

Plectorhinchus niger (Cuvier).

Two, 188 to 197 mm., Bangkok.

Plectorhinchus pictus (Thunberg).

One, 211 mm., Bangkok.

Pomadasyx maculatus (Bloch).

One, 150 mm., Bangkok.

Teraponidae

Terapon theraps Cuvier.

One, 160 mm., Bangkok.

Terapon jarbua (Forsk.)

Four, 71 to 94 mm., Sriracha.

2164

Atherina hepsetus (not Linnaeus)
Forsk., Descript. Animal., p. 69,
1775 (part).

Atherina affinis Bennett, Proc.
Comm. Zool. Soc. London, vol. 14, p.
166, 1831 (March 1932) (type
locality, Mauritius). — Guichenot,
Notes Ile Réunion, vol. 2, p. 27, 1862.

short, inconspicuous points, $\frac{1}{5}$ of
gill filaments, which $1\frac{1}{4}$ in eye

Scales very minute, inconspicuous
Lateral line incomplete or not
extended beyond dorsal base, well
arched though not quite parallel
with dorsal profile of body.

D. VII, 40 or 41, spines low,
truncate, with point in front
and behind, inconspicuous,
seventh ray $2\frac{2}{5}$ to $2\frac{3}{5}$ in combined
head and trunk to caudal base
A. V or VI, 37 to 39, spines like
dorsal spines, eighth ray 2 to $2\frac{3}{5}$
caudal $2\frac{1}{3}$ to $2\frac{4}{5}$, deeply forked
lobes slender, sharply pointed
upper or lower longer; pectorals
 $2\frac{3}{4}$ to 3, rays 23 or 24; least
depth of caudal peduncle $2\frac{2}{3}$
to 3.

Atherina punctata Bennett, Proc.
Comm. Zool. Soc. London, p. 184,
1832 (January 14, 1833) (type
locality, Mauritius). — Günther,
Cat. Fish. Brit. Mus., vol. 3, p.
392, 1860 (reference). — Sauvage,
Hist. Nat. Madagascar, Poiss.,
p. 522, 1891 (reference).

Atherina pectoralis Valenciennes,
Hist. Nat. Poiss., vol. 10, p. 447, 1835
(type locality, Ile de France;
Bourbon; Seychelles).

body mauve, becoming pale to
silvery or milk white on under
surfaces. Back, lower sides of
head, breast and front of tail
 suffused with areas of dusky
dots. Head above like back,
sides and below silvery to milk
white. Muzzle more or less
translucent. Iris white and
ray. Caudal with very dilute
yellowish to ochraceous tints,
vertical fins otherwise more or
less with dusky. Pectoral

1049

A 760. Sipadan Island, Sibulao
Bay vicinity, Borneo. September 28, 1909.
Length 241 mm.

^{and 13035}
A 882¹ Limbe Strait, vicinity of Strait
Island, north of Celebes. November 10,
1909. Length ^{216 to} 341 mm.
1315² ~~Powati Harbor,~~ ^{makassar} Island Molucca Passage.

2166

Atherina lacunosa (not Schneider)
Valenciennes, Hist. Nat. Poiss., vol.
10, p. 454, 1835 (Waigiu; New
Caledonia). — Macleay, Proc. Linn.
Soc. New South Wales, vol. 1, p. 340,
1875 (Cape York). — Günther,
Journ. Mus. Godeffroy, vol. 6, pt.
11, p. 213, pl. 118, fig. E, 1877 (Vati,
New Hebrides; New Caledonia;
Anciteum); Rep. Voy. Challenger,
vol. 1, pt. 6, p. 36, 1880 (Fiji). —
Macleay, Proc. Linn. Soc. New
South Wales, vol. 5, pt. 2, p. 38,
1881 (Cape York record). — Ogilby,
Cat. Fish. New South Wales, p. 40,
1886. — Waite, Rec. Canterbury
Mus., vol. , no. , p. 21, 1904
(reference). — Jordan and Seale,
Bull. Bur. Fisher., vol. 25, p. 216,

verditer green. Fore part of belly greenish white, posterior part purplish white. Dorsal speckled with dull yellow and brown, also caudal and both fins edged with pale orange. Anal greenish at base, dusky terminally, edged white. Pectoral dull yellow, with 5 dusky bars. Ventral white."

Ophicephalus lucius Valenciennes.
One, 188 mm., Bangkok.

Ophicephalus micropeltes Valenciennes.
Fifty-seven, 21 to 33 mm., Chiang Mai. "Dull green above. Stripe from eye through tail orange, brightening towards tail. Fore part of belly silvery. Iris bright orange."

Carangidae

2168

Atherinichthys cephalotes Castelnau,
Proc. Zool. Acclimat. Soc. Victoria,
vol. 1, p. 137, July 15, 1872 (type
locality, Hobson's Bay, Victoria).
— Macleay, Proc. Linn. Soc. New
South Wales, vol. 5, pt. 2, p. 43,
1881 (copied). — Sauvage, Hist.
Nat. Madagascar, Poiss., p. 408,
1891 (reference).

Atherinichthys picta Castelnau,
Proc. Zool. Soc. Victoria, vol. 1, p.
137, July 15, 1872 (type locality,
Tinnot's Dock, Lower Yarra,
Victoria). — Macleay, Proc. Linn.
Soc. New South Wales, vol. 5, pt. 2, p.
42, 1881 (copied).

Two, 225 to 228 mm., Bangkok.

Caranx balla Valenciennes

Four, 127 to 156 mm., Bangkok.

Selaroides leptolepis (Valenciennes)

Five, 122 to 147 mm., Bangkok.

Atropus atropus (Schneider)

Two, 131 to 143 mm., Bangkok.

Stromateidae

Pampus cinereus (Bloch)

Two, 172 to 173 mm., Bangkok.

Pampus sinoprotopus, new species.

Figure 118.

Depth $1\frac{2}{5}$ to $1\frac{1}{2}$; head $3\frac{1}{8}$ to $3\frac{1}{2}$,
width $1\frac{7}{8}$ to 2. Snout $3\frac{1}{2}$ to $3\frac{7}{8}$
in head; eye $3\frac{7}{8}$ to 4, subequal
with snout, 2 to $2\frac{1}{5}$ in interorbital;
maxillary reaches $\frac{2}{5}$ to $\frac{1}{2}$ in eye,
length ^{from snout tip} $2\frac{1}{8}$ to $2\frac{1}{5}$ in head; teeth
line, compressed, close set, slender,
form even narrow cutting edge in
each jaw; interorbital $2\frac{1}{3}$ to $2\frac{2}{5}$.

2159

Atherina
Hepsetia pinguis {Lacépède}

Atherina pinguis Lacépède, Hist.
Nat. Poiss., vol. 5, pp. 371, 373, pl.
11, fig. 1, 1803 (type locality not
given [= Mauritius]). — Bleeker,
Act. Soc. Sci. Ind. Neerl. (Sumatra),
vol. 8, p. (12) 84, 1859 (Benculen). —
Günther, Cat. Fish. Brit. Mus.,
vol. 3, p. 399, 1861 (Madagascar;
Anceitum; Sydney; South Australia).
— Schmeltz, Cat. Mus. Godeffroy,
~~Cat~~ No. 1, p. 9, 1864 (South Seas); No.
2, p. 7, 1865 (South Seas); No. 3, p.
10, 1866 (Samoa). — Steindachner,
Sitzb. Ber. Akad. Wiss. Wien,
Math.-naturw. Kl., vol. 53, pt. 1, p.
458, 1866 (Port Jackson). —
Schmeltz, Cat. Mus. Godeffroy, No. 4, p. 20, 1869 (Samoa; Viti). —
Klunzinger, Verh. zool. bot. Ges. Wien,
1 —

dark or dusky dots. Iris white.
Mandible, lips and under surface
of snout whitish. Opercle brownish.
Spinous dorsal largely blackish
terminally, gray basally. Other
vertical fins grayish. Pectoral
dark or dusky brown. Ventral
whitish.

A. N. S. P., No. 60171. Bangkok
Siam. March 11, 1933. Length 102
mm. Type.

Differs from known species
chiefly in its fewer dorsal rays,
in the other species of the genus
27 to 36^{and} their scales along above
lateral 78 to 120. Compared with
Otolithoides brunneus (Day) that
species has gill rakers 6 + 11 and
very slightly less than gill filaments.
(Named for Siam.)

1905 (1906) (reference). — Waite,
Rec. Canterbury Mus., vol. ,
p. 15, 1907 (
— Jordan and Richardson, Bull.
Bur. Fisher., vol. 27, p. 243, 1907
(1908) (Iloilo).

Atherinichthys modesta Castelnau,
Proc. Zool. Acclimat. Soc. Victoria,
vol. 1, p. 136, 1872 (type locality,
Hobson's Bay; Lower Yarra, South
Australia). — Macleay, Proc. Linn.
Soc. New South Wales, vol. 5, pt. 2, p.
41, 1881 (copied).

caeruleopunctatus 117, 128

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Atherina insularum Jordan and Evermann, Bull. Bur. Fisher., vol. 22, ~~part~~ p. 170, 1902 (1903) (type locality, Honolulu; Lahaina; Kailua; Hilo). — Jenkins, Bull. Bur. Fisher., vol. 22, p. 437, 1902 (1903) (Lahaina; Honolulu). — Snyder, Bull. Bur. Fisher., vol. 22, p. 523, 1904 (Laysan; Molokai). — Jordan and Evermann, Bull. Bur. Fisher., vol. 23, pt. 1, p. 138, fig. 47, 1903 (1905) (Lahaina; Kailua; Hilo; Honolulu). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 216, 1905 (1906) (reference). — Tanaka, Fishes of Japan, vol. 38, p. 722, pl. 161,

teeth, more or less uniform and usually single conic large tooth forward at middle of upper jaw, inner band of villiform teeth with 3 or 4 transversely, all around jaws; lower teeth anteriorly like upper, posteriorly each side giving rise to inner enlarged series much same as outer enlarged anterior series; no teeth on palate or tongue; interorbital $3\frac{1}{4}$ to 4 in head from snout tip. Gill rakers $4 + 12$, $\frac{2}{5}$ of gill filaments, which $1\frac{1}{4}$ times eye.

Scales 72 to 75 in axial lateral series from suprascapula to caudal base; 29 or 30 transversely above anal base, ^{45 to} 50 predorsal forward opposite nostrils. Scales with 12 to 2 basal radiating striae; single row of 38 or 39 apical denticles; culi fine, only complete basally.

September 1,
fig. 450, 1927 (Formosa) 2170.
— Borodin, Bull. Vanderbilt
Marine Mus., vol. 1, art. 2, p. 49,
1930 (Philippines); vol. 1, art. 3,
p. 76, 1932 (Noumea, New Caledonia,
Conway Bay, Indefatigable Island,
Galapagos).

Hepsetia insularum Jordan and
Hubbs, Stanford Public., p. 33,
pl. 1, fig. 3, 1919 (reference). —
Fowler, Copeia, no. 122, p. 82,
November 20, 1922 (Hawaiian
Islands); Bull. Bishop Mus.,
no. 22, p. 25, 1925 (Honolulu). —
Fowler and Ball, Bull. Bishop
Mus., no. 26, p. 10, 1925 (Lisiansky).
— Fowler, Bull. Bishop Mus.,
no. 38, p. 8, 1927 (Honolulu); Mem.
Bishop Mus., vol. 10, p. 119, 1928

greatly smaller eye, smaller
fins, longer caudal, and entirely
different coloration. It has
much the appearance of
Gigantogobius Fowler, but
with larger scales and different
coloration.

(Καλλος beauty or handsome
+ Eleotris.)

Callielectris platycephalus, new
species. Figures 123 (head above)
and 124.

Depth 4 to $4\frac{7}{8}$; head $2\frac{3}{5}$ to $2\frac{3}{4}$,
width $1\frac{1}{4}$ to $1\frac{3}{5}$. Snout $5\frac{1}{5}$ to $5\frac{1}{2}$
in head from snout tip; eye $7\frac{3}{5}$
to 9, $1\frac{1}{2}$ to $1\frac{3}{5}$ in snout, $2\frac{1}{4}$ to
 $2\frac{2}{3}$ in interorbital; maxillary
extends back obliquely opposite
middle of eye, length $2\frac{1}{2}$ to $3\frac{1}{5}$
in head from snout tip; upper

(type of Atherina insularum;
Honolulu; Kailua; Hanalei
River; Waikiki; Koolau Bay,
Oahu; Laie Stream and beach,
Oahu; Pearl City; Lisiansky);
vol. 11, no. 5, p. 324, 1931 (Honolulu).
— Schmidt, Trans. Pac. Comm.
Acad. Sci. U. S. S. R., vol. 1, p. 26,
1930 (Yaezama, Miyako Island).

and ctenoid posteriorly. Head, except muzzle and under surfaces largely scaly, scales little larger on opercles. Cheek and infradorbital region with many vertical parallel series of close set papillae, many radiating from lower eye edge, as short variable bars. Caudal and paired fins finely scaled basally, other fins naked. Two dorsals, spines flexible terminally and rayed fin larger. Anal opposite soft dorsal and smaller. Pectoral moderate. Ventral small. Caudal rather large. Type Callieotris platycephalus, new species.

Greatly like Boroda Herre, but differs in its greatly inclined mouth, which more terminally

Atherina morisi Jordan and Starks,
Proc. U. S. Nat. Mus., vol. 30, p. 697,
fig. 3, 1906 (type locality,
Miyamora, Yakushima). —
Jordan, Tanaka, Snyder, Journ.
College Sci. Tokyo, vol. 33, p. 111,
fig. 84, 1913 (Yakushima).
Hepsetia morisi Jordan and Hubbs,
Stanford Public., p. 33, pl. 1, fig. 2,
1919 (reference).

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Atherina vaigiensis (not Duoy and
Gaimard) Kendall and Goldsborough,
Mem. Mus. Comp. Zool., vol. 26, p. 255,
1911 (Makemo; Guam; Moen).

Hepsetia vaigiensis Fowler, Mem.
Bishop Mus., vol. 10, p. 126, 1928
(Moen, Guam, ~~Truck~~, Truck,
Makemo).

Atherina forsbali (not Rüppell)

Jordan and Starbs, Ann. Carnegie
Mus., vol. 11, p. 439, 1917 (

— Jordan and Hubbs,
Ann. Carnegie Mus., vol. 11, p. 462,
pl. 46, 1917 (

Pranaceus ogilbyi Whitley,

Mem. Queensland Mus., vol. 10,

pt. 1, p. 9, August 28, 1930 (type

locality, Moreton Bay on Atherina
pinguis Ogilby, not Lacépède I).

Siam. March 12, 1933. Length 110 mm.
Type.

Only the type known. The
characters are contained in the
generic account.

(*Xpilocos* golden.)

Trichopodus trichopterus (Pallas).

Two, 128 to 130 mm., Bangkok;
forty-four, 24 to 88 mm., Chiang
Mai; two, 31 to 48 mm., Metang
River 35 miles north of Chiang Mai;
four, 71 to 90 mm., Keng Tung.

Trichopodus pectoralis Regan.

Four, 154 to 173 mm., Bangkok.

Ophicephalidae

Ophicephalus striatus Bloch.^H

Nineteen, 48 to 258 mm., Chiang
Mai; six, 100 to 135 mm., Metang
River 35 miles north of Chiang Mai;
two, 38 mm., Chantaboon; one, 244

Depth $4\frac{2}{5}$ to 5; head $3\frac{2}{3}$ to $4\frac{1}{8}$, width $1\frac{2}{3}$ to $1\frac{3}{4}$. Snout $3\frac{1}{2}$ to $4\frac{1}{4}$ in head; eye $2\frac{3}{4}$ to $2\frac{7}{8}$, greatly exceeds snout, subequal with interorbital; maxillary reaches $\frac{1}{5}$ to $\frac{1}{2}$ in eye, length 2 to $2\frac{1}{5}$ in head; ramus of mandible low inside mouth; teeth villiform, fine, in narrow bands in jaws, on vomer and palatines; interorbital $2\frac{3}{5}$ to $2\frac{7}{8}$ in head, nearly level to slightly concave, depressed medially. Gill rakers $5 + 19$ or 20 , finely lanceolate, subequal with gill filaments, which $2\frac{1}{8}$ in eye.

Scales 40 to 42 in median lateral series to caudal base and 4 more on latter; 8 transversely, 20 to 22 predorsal of which 17 or

Amia notata (Houttuyn)

~~X~~ parus notatus Houttuyn, Verh. Holl.
Maatsch. Wet. Haarlem, vol. 20, pt. 2,
1782, p. 320. Japan. — Gmelin, Syst.
Nat. Linn., ^{vol. 1,} 1789, p. 1272. — Walbaum,
Arted. Pisc., vol. 3, 1792, p. 303. —

Forster, Fauna Indica, 1795, p. 303.

Apogon notatus Jordan and Snyder,
Proc. U. S. Nat. Mus., vol. 23, 1901, p. 1904,
fig. 8 (Nagasaki and Wakanoura). —

Fowler, Proc. Acad. Nat. Sci. Phila., 1906,
p. 527 (Japan).

Amia notata Jordan and Starke,
Proc. U. S. Nat. Mus., vol. 30, 1905, p. 698,
fig. 4 (Yakushima). — Snyder, Proc.
U. S. Nat. Mus., vol. 42, 1912, p. 412

(Kagoshima and Tanegashima). —

Fowler, Proc. Acad. Nat. Sci. Phila.,
1927, p. 274 (Philippines).

18 forward to occiput. Scales with 2 or 3 basal points on nearly straight basal edge; 20 to 60 parallel vertical striae basally; apical half of scale entire, ragged.

d. IV or V — I, I, 8, I or I, I, 9, I,
third spine $2\frac{3}{5}$ to $2\frac{4}{5}$ in head,
first branched ray $1\frac{4}{5}$ to $2\frac{1}{6}$;

a. I, I, 13, I, first branched ray $1\frac{3}{4}$ to $2\frac{1}{10}$; caudal 1 to $1\frac{1}{8}$, deeply forked; least depth of caudal peduncle $3\frac{1}{3}$ to $3\frac{2}{3}$; pectoral 1 to $1\frac{1}{4}$; ventral $1\frac{4}{5}$ to $1\frac{7}{8}$. Vent at or slightly before tips of depressed ventrals, slightly to well before spinous dorsal origin.

Pale brown to cinnamon or cream color on sides and below, evidently paler in life. Scales

[D. 5245] ^{1413 and 1413.} Manivaw Island, S. 41° E., 4 miles ($6^{\circ}52'36''$ N., $126^{\circ}14'52''$ E.), vicinity Pujada Bay. May 15, 1908. Length 100 to 103 mm. 2 examples.

[D. 5442] San Fernando Point Light, N. 39° E., 8.4 miles ($16^{\circ}30'36''$ N., $120^{\circ}11'06''$ E.), west coast Luzon. May 11, 1909. Length 52 to 64 mm. 2 examples.

of head above and on back
dusted with blackish dots
marginally. Along side dark
gray underlaid axial line to
caudal base, forms along band
little wider than pupil of
darker brown than body color.
Iris silvery gray. Lips with
dark dots. Fins pale or
grayish, lower ones more
whitish.

from its tip a dark brown band extends to eye, then back over postocular along median axis to caudal peduncle. Another dark brown band begins on snout above, and extends over eye back along upper side of back till below soft dorsal fin. Round blackish spot, little smaller than pupil, at caudal base medianly. Fins all pale to whitish, except blackish spot marginally at apex of spinous dorsal over at least 2 membranes.

Philippines, China, Japan.

A. N. H. G., one example. Lepid.
 Simon. Dr. Erling Christoffersen.
 Bishop Museum. Length 106 mm.

A. N. H. G., three examples. Dental,
 7 with Lepid. Dr. A. Paulsen.
 Length 134 to 154 mm.

Lateral line of rather large tubes, each well exposed and with crumpled basal scale. Scales with 13 to 15 basal radiating striae; 73 to 90 apical denticles, with 3 to 5 transverse series of basal elements; ~~annuli~~ circuli fine.

D. VII - I, 9, I, fourth spine $2\frac{1}{3}$ to $2\frac{2}{3}$ in total head length, first ray $1\frac{2}{3}$ to $1\frac{3}{4}$; A. II, 8, I, second spine $2\frac{3}{4}$ to 3, first ray $1\frac{3}{4}$ to $1\frac{4}{5}$; Caudal $1\frac{1}{5}$ to $1\frac{1}{4}$, deeply emarginate behind; least depth of caudal peduncle $2\frac{7}{8}$ to $3\frac{1}{4}$; pectoral $1\frac{2}{5}$ to $1\frac{3}{5}$; ventral $1\frac{7}{8}$ to 2.

Rather pale brown, inclining to white below with silvery white reflections, especially about head and breast. Iris silvery white, with brown above. On ~~side of~~ snout

2179

Hepsetia afra (Peters)

Atherina afra Peters, Archiv
Naturges., vol. 1, p. 244, 1855
(type locality, Mozambique).

— Günther, Cat. Fish. Brit.
Mus., vol. 3, p. 398, 1861 (copied).

— Sauvage, Hist. Nat. Madagascar,
Poiss., p. (406) 522, 1891 (reference).

— Barnard, Ann. South Afric.
Mus., vol. 21, pt. 1, p. 297, June
1925 (Delagoa Bay, Mozambique
Coast). — Fowler, Ann. Natal
Mus., vol. 7, pt. 3, p. 412, 1934
(Durban Bay).

Hepsetia afra Jordan and Hubbs,
Stanford Public., p. 34, 1919
(reference).

Gobiidae

247

Vainosa siamensis, new species.
Figure 125.

Depth $4 \frac{3}{5}$; head 3, width $1 \frac{1}{2}$.
Snout $3 \frac{1}{4}$ in head from snout tip; eye $4 \frac{1}{2}$, $1 \frac{1}{4}$ in snout, much greater than interorbital; maxillary little inclined, reaches opposite hind eye edge, length $1 \frac{7}{8}$ in head from snout tip; lips broad, fleshy; upper teeth 2 small canines anteriorly, not visible behind fleshy lip until lip pushed back; followed by inner narrow band of fine small teeth; lower teeth moderate, in band in front of mandible, rather large, curved, 3 or 4 transversely; tongue thick, fleshy, truncate; interorbital narrow, depressed, width $\frac{1}{2}$ of eye. Gill ^{low} rudiments:

Depth $5\frac{1}{8}$; head 4, width $1\frac{4}{5}$.

Snout 4 in head; eye $2\frac{7}{8}$, much greater than snout, equals interorbital; maxillary reaches $\frac{1}{5}$ in eye, slender, length 3 in head; rami of mandible well elevated inside mouth; teeth minute, villiform, in bands in jaws, band of upper jaw exposed when jaws closed and apparently obsolete or absent from vomer and palatines; interorbital $2\frac{7}{8}$, level. Gill rakers 7 + 21, lanceolate, equal gill filaments or $1\frac{4}{5}$ in eye.

Scales 40 in median lateral series to caudal base and 3 more on latter; 7 transversely, 19 predorsal. Median lateral row of scales or 3 rows from dorsal edge each with distinct pore.

Amia nigrocincta Smith and Radcliffe

Amia nigrocincta Smith and Radcliffe,
Proc. U. S. Nat. Mus., vol. 41, 1912, p. 435,
pl. 37, fig. 2. near Jolo (N. Lat. $6^{\circ}5'50''$
E. Long. $121^{\circ}2'15''$, in 19 fathoms).

Scales with 3 basal points;
 19 parallel basal striae and
 terminal half of scale entire.

D. VI - I, 10, I, third spine
 $2\frac{1}{2}$ in total head length; A.
I, 15, I, first ray $2\frac{1}{5}$; caudal
 forked; least depth of caudal
 peduncle $2\frac{7}{8}$; pectoral $1\frac{2}{5}$;
 ventral $1\frac{2}{3}$.

Pale brown, scarcely lighter
 below. Each scale on back with
 submarginal row of blackish
 dots. Bright silvery white lateral
 band, sharply defined, from
 shoulder to caudal base
 medially and less than eye
 diameter in width. Iris silvery
 white, also side of head. Ventrals
 dusted with dusky. Fins all
 pale brown, caudal slightly

edged below by silvery marginal line, also silvery line above on eye. Upper membranes of front dorsal spines dusky. Soft dorsal with brown, narrow, subbasal line. Fins otherwise uniformly pale. Small round black spot at caudal base medially, less than pupil.

Known only from the type, a female with immature eggs.

70246 U. S. N. M. Canimahala Bay,
Ragay Gulf, Luzon. Length 78 mm.
Type.

susby terminally.

on cheek to preopercle ridge;
 caudal base scaly, other fins
 scaleless. Lateral line with large
 tubes, each with large crenulated
 basal scale. Scales with 14 basal
 radiating striae, edge scalloped;
 74 to 76 apical denticles, short,
 with 2 transverse series of apical
 denticles; circuli very fine.

D. VII - I, 9, I, fourth spine $2\frac{1}{3}$ in
 total head length, first ray $1\frac{7}{8}$;
 A. II, 8, I, second spine $3\frac{1}{5}$, first
 ray 2; caudal $1\frac{1}{3}$, emarginate;
 least depth of caudal peduncle
 $2\frac{2}{5}$; pectoral $1\frac{3}{4}$; ventral 2.

Light brown, back little more
 brownish. Sides of head and trunk
 with brassy reflections. Dark brown
 bar from snout tip, includes chin,
 to eye, continued faintly on postocular;

A. h. S. P., one example. Durban
Bay, Natal. 1931. H. W. Bell
Harley. Length 61 mm.

Amia diversa Smith and Radcliffe
Amia diversa Smith and Radcliffe, Proc.
 U. S. Nat. Mus., vol. 41, 1912, p. 434, pl. 37,
 fig. 1. Canmahala Bay, Luzon.

Depth $2\frac{3}{4}$; head $2\frac{1}{2}$, width $2\frac{1}{2}$. Snout
 $4\frac{1}{2}$ in head from snout tip; eye 3,
 greater than snout or interorbital;
 maxillary reaches opposite eye center,
 expansion $2\frac{1}{2}$ in eye, length 2 in
 head from snout tip; teeth in
 villiform bands in jaws, on vomer
 and palatines; interorbital 4, nearly
 level; preopercle ridge and edge serrate,
 though serrae of ridge less perfect.
 Gill rakers 7 + 17, lanceolate, little
 longer than gill filaments or $2\frac{1}{3}$ in
 eye.

Scales 25 in lateral line to caudal
 base and 3 more on latter, 2 scales
 above, 6 below, 3 predorsal, 2 rows

2184
Atherina maculipectorale new species

~~Smithsonian Institution~~

Depth $2\frac{3}{4}$ to $2\frac{7}{8}$; head $2\frac{3}{4}$ to 3, width $2\frac{1}{8}$ to $2\frac{1}{4}$. Snout $3\frac{7}{8}$ to 4 in head from upper jaw tip; eye $2\frac{2}{3}$ to $3\frac{1}{4}$, greater than snout or interorbital; maxillary reaches $\frac{1}{3}$ in eye, expansion 3 to $3\frac{1}{2}$ in eye, length $2\frac{1}{4}$ to $2\frac{1}{3}$ in head from snout tip; teeth fine, villiform, in broad bands in jaws, narrower ones on vomer and palatines, none on tongue; interorbital $3\frac{1}{8}$ to $3\frac{3}{5}$, broadly convex; lower preorbital and preopercle edges denticulate; and preopercle flange with striae. Gill rakers 9+18, lanceolate, slender, twice long as gill filaments or $1\frac{3}{4}$ in eye.

~ 185

Depth $5\frac{1}{2}$ to $5\frac{3}{5}$; head $4\frac{1}{4}$ to $4\frac{3}{5}$,
width $1\frac{4}{5}$ to $1\frac{7}{8}$. Snout $3\frac{1}{4}$ to 4
in head from snout tip; eye $2\frac{3}{4}$
to $2\frac{4}{5}$, -greatly exceeds snout,
subequal with interorbital;
maxillary reaches front eye
edge, length $2\frac{1}{2}$ to $2\frac{3}{4}$ in head
from snout tip; teeth in jaws
minute, in narrow bands, simple,
upper exposed somewhat with
closed jaws; no teeth on palate;
interorbital $2\frac{2}{5}$ to $2\frac{4}{5}$, low,
largely level, with concave
depression anteriorly. Gill rakers
5 + 23, lanceolate, slender, little
longer than gill filaments or
 $2\frac{1}{5}$ in eye.

Scales 40 or 41 in lateral
series to caudal base and 4 or 5
more on latter; 7 transversely,
18 or 19 predorsal forward to

occiput or nearly opposite hind eye edge. Caudal base largely with small scales. Scales with 3 or 4 basal points of which one prominent and enlarged; 40 to 44 parallel basal striae; apical half of scale smooth, edge with irregular scallops.

D. IV - I, I, 8, I, second spine $2\frac{1}{8}$ to $2\frac{2}{5}$ in total head length, first branched ray $1\frac{7}{8}$ to 2; A. I, I, 11, I, first branched ray $1\frac{3}{4}$ to $1\frac{4}{5}$; caudal 1, deeply forked, lobes pointed, even; least depth of caudal peduncle $2\frac{3}{4}$ to 3; pectoral $1\frac{1}{10}$ to $1\frac{1}{8}$, rays I, 13; ventral rays I, 5, fin $1\frac{1}{2}$ to $1\frac{3}{5}$ in head; vent midway or little advanced in depressed pectoral length.

Light brown generally above, slightly paler below. Lateral silvery gray band, width about $\frac{3}{4}$ eye diameter. On back each scale with median area sprinkled with dusky dots. Sides of body more or less with silvery white reflections. End of muzzle brownish. Top of head slate gray. Fins largely pale or lower whitish. Dorsals and caudal with grayish marginally. Pectoral pale, with conspicuous, large, deep brown subbasal blotch above.

Borneo. Known by the black blotch on pectoral subbasally above, vent advanced ~~on~~ midway in depressed ventral, first dorsal origin nearer anal than ventral, mandibular rami elevated and pectoral 6 in total.

26 examples.. Sandakan
Anchorage, Borneo. February
29, 1908. Length 70 to 90 mm.

23 examples. Sandakan.
March 1, 1908. Length 74 to 86 mm.

A. N. S. P., Nos. 59861 to 59877,²¹¹
paratypes, same data. Length
31 to 68 mm. Also 3 from Chiang Mai, 28 to 54 mm;
one 50 mm. (beak broken) from Mueang River 35^{miles} north of Chiang Mai.

Greatly like the East Indian
Dermogenys pusillus Van Hasselt,
but that species with the ventral
origin nearer the caudal base than
the gill opening.

(named for Siam.)
8 pt. chel. bold caps

Holeidae

Brachirus aeneus (H. M. Smith) ①

Series of 37 specimens, 27 to 75
mm., Chiang Mai. Largest example
with mutilated regenerated tail.
When fresh "sandy brown above,
with round black spots. Below
purplish flesh color."

8 pt. chel. bold caps Cynoglossidae

Cynoglossus semifasciatus Day ①

Depth $3\frac{3}{4}$. Snout $2\frac{7}{8}$ in head.

dark brown dorsal line of

2189

Genus Craterocephalus McCulloch

Craterocephalus McCulloch, Proc.
Roy. Soc. Queensland, vol. 24, 1913,
p. 48. (Type Craterocephalus
fluviatilis McCulloch, orthotypic.)

Body elongate, somewhat compressed.
Mouth very small, oblique, bordered
by premaxillaries; maxillary
posterior, not reaching eye;
premaxillaries very protractile,
straight. Both jaws with very
small teeth, none on palate.
Gill membranes free from isthmus
and each other. Gill rakers
very short, thick, pointed, 10
below. Vertebrae 17. Scales
smooth to somewhat crenulated
behind, 31 to 39 in lateral series,

The following nominal species is doubtless ²¹⁹⁰
~~Atherina jacksoniana~~
a member of the present genus:

Atherina jacksoniana Duy and Gaimard,
Voy. Uranie, Zool., p. 333, 1825 (type
locality, Sydney Harbor, Australia).

— Valenciennes, Hist. nat. Poiss., vol.
10, p. 461, 1835 (Port Jackson; Tasmania).

— McCulloch, Mem. Austral. Mus.,
vol. 5, pt. 1, p. 107, June 29, 1929 (reference).
(Fishes New South Wales, ed. 2, p. 40, 1927 ("not
been recognised since it was first described").

Atherinichthys jacksoniana Günther, Cat.
Fish. Brit. Mus., vol. 3, p. 402, 1861

copied). — Castelnau, Proc. Linn. Soc.
New South Wales, vol. 3, p. 358, 1878

(Port Jackson). — Macleay, Proc. Linn.
Soc. New South Wales, vol. 5, pt. 2, p. 41,

1881 (copied). — Sauvage, Hist. nat.
Madagascar, Poiss., p. 408, 1891 (reference).

interorbital $6\frac{1}{5}$ to $6\frac{2}{3}$, slightly convex; preopercle edge minutely serrated, with few serrae at angle trifle enlarged. Gill rakers $9+13$, lanceolate, little longer than gill filaments or $1\frac{4}{5}$ in eye; 7 upper and 5 lower rudimentary.

Scales 104 to 107 in lateral line to caudal base and 10 to 13 more on latter; tubes 62 to 70 in lateral line to caudal base and 10 to 12 more on latter; 22 or 23 above lateral line, 35 to 38 below, 62 to 68 predorsal forward opposite hind nostril, 33 rows across cheek to preopercle angle; fins all with fine scales over greater portions basally; moderate patch of very small scales over upper half of maxillary. Scales with 4 basal radiating striae;

Chirostoma jacksoniense White, Mem.
New South Wales Natural Club, vol. 2,
p. 21, 1904.

Craterocephalus jacksonianus Jordan
and Hubbs, Stanford Public, p. 46,
1919 (reference).

? Litharina heppetus (not Linnaeus McCulloch, Mem. Austral. Mus., vol. 5, pt.
1, p. 107, June 27, 1927 (Tasmania).

1054

Depth $2\frac{3}{5}$ to $2\frac{3}{4}$; head $2\frac{3}{5}$ to $2\frac{3}{4}$,
width $1\frac{7}{8}$ to $2\frac{1}{2}$. Snout $3\frac{1}{3}$ to $3\frac{2}{3}$
in head from snout tip; eye $6\frac{1}{8}$ to 7,
 $1\frac{1}{2}$ to 2 in snout, slightly greater
than interorbital in young to $1\frac{1}{8}$ in
interorbital with age; maxillary
extends back slightly beyond eye,
expansion 1 to $1\frac{1}{8}$ in eye, length 2 to
 $2\frac{1}{8}$ in head from snout tip; teeth
in villiform bands in jaws, with
some inner front upper ones elongated
and depressible, outer maxillary row
enlarged and wide set pair of
upper front canines; lower teeth
in 3 or 4 series anteriorly, narrowing
posteriorly to 2 series, also inner
row longest and hinged and pair
of front canines closer than upper;
small band of fine teeth on vomer
and palatines, none on tongue;

preopercular extend forward till
 between eyes. Cheek and opercle
 scaly. Lateral line absent
 on scales pierced by single
 pore. First dorsal spine 6 to
 8, flexible, inserted well behind
 ventrals. Second dorsal with
 spine and ~~4~~⁷ to 9 ~~9~~ soft rays,
 anal with weak spine and 8 to
 10 soft rays, origin slightly
 advanced from second dorsal
 origin. Caudal forked. Pectoral
 rather high, above middle of
 body depth. Ventrals with
 slender spine and 5 soft rays.

Fresh water of Louisiana
 and New-England.

Perca incorata Lichtenstein, Descript.
Animal. Forster, 1844, p. 222. Saint
Christian, Waitako.

Serranus melanotaenia Bleeker, Act.
Noc. Sci. Ind. Néerl. ~~mus.~~ (Amboina),
vol. 2, 1857, p. 33, Amboina. — Günther,
Cat. Fishes Brit. Mus., vol. 1, 1859, p. 504
(copied).

Variola melanotaenia Bleeker, Atlas
Ichth. Ind. Néerl., vol. 7, 1873-74, pl. (II)
289, fig. 4.

Analysis of Species

a.' Anal I, 7 to I, 12.

b.' Scales 25 in lateral series;

A. I, 7.

pauciradiatus.

b.² Scales 30 to 39 in lateral series.

c.' Scales 30 in lateral series; anal

9; eye $3\frac{1}{4}$ in head.

capreoli.

c.² Scales 31 to 34 in lateral series.

d.' Eye $2\frac{1}{2}$ to $3\frac{1}{2}$ in head.

e.' Anal I, 8 or 9.

f.' Scales without dark spots.

fluviatilis.

f.² Scales each marked with dark spot.

stercus-muscarum.

e.² Anal I, 10.

g.' Scales 32 to 34 in lateral series.

honorae.

g.² Scales 36 to 39 in lateral series.

neorhynsi.

d.² Eye $3\frac{3}{4}$ in head; anal I, 6 to 8.

eyresii.

a.² Anal I, 16; scales?

2194
obscurus.

2195

Craterocephalus pauciradiatus (Günther)

Atherina pauciradiata Günther, Cat.
Fish. Brit. Mus., vol. 3, p. 401, 1861
(type locality, North West Australia).
— Macleay, Proc. Linn. Soc. New
South Wales, vol. 5, pt. 2, p. 39,
1881 (copied). — Sauvage, Hist.
Nat. Madagascar, Poiss., p. 406,
1891 (reference).

Craterocephalus pauciradiatus
Jordan and Hubbs, Stanford Public,
p. 46, 1919 (reference). — McCulloch,
Mem. Austral. Mus., vol. 5, pt. 1,
p. 110, June 29, 1929 (reference).

bands. Anal pale basally, with
submarginal blackish slate
band, edge of fin narrowly
whitish. Paired fins uniformly
pale, dusted obscurely with
minute brownish dots.

A. N. S. P., No. 59774. Ching
hai, North Siam. December 30,
1932. Length 29 mm. Type.

A. N. S. P., Nos. 59772 and 59773,
paratypes, same locality. December,
1932. Length 33 to 35 mm.

In Herre's account of the
Philippine and China Sea species
this one appears structurally to
approach Rhinogobius siuensis
Herre. That species, however,
is with quite different coloration.

(Named for Ching hai.)
Glossogobius gibbus (Buchanan-
Hamilton)

Three, 144 to 203 mm., Bangkok.

Depth 5 in total; head 4. Eye $3\frac{2}{3}$ in head, equals snout, much less than interorbital; maxillary reaches below front eye edge; mouth very protractile, oblique, jaws equal anteriorly; minute teeth in jaws.

Scales 25 in lateral line; 6 transverse.

D. ~~V~~ or VI - I, 6, spinous fin above hind half of ventral; A. I, 7; pectoral rays 12.

Silvery band narrow, occupies central half of third series of scales. Length 64 mm. (Günther)

Northwestern Australia.

Craterocephalus capricornis Bonaparte

Craterocephalus capricornis Bonaparte,
 Mémoires de l'Académie des Sciences de Paris, 1801,
 tome 5, p. 175, fig. 3, September
 8, 1801 (type locality, Rockingham
 Bay, north west Australia). —
Mc Culloch, Proc. Linn. Soc. New South
 Wales, vol. 1, p. 112, June 24, 1857
 (reference).

Serranus flavimarginatus Rüppell,
Atlas Reise nördl. Afr. ^{Fische}, Fische, 1828,
p. 109. near Mohila. — Günther, Cat.
Fishes Brit. Mus., vol. 1, 1859, p. 103
(copied).

Variola flavimarginata Bleeker, Atlas
Ichth. Ind. Néerl., vol. 7, 1873-76, p. 23
(Amboina). — nyder, Proc. U. S.
Nat. Mus., vol. 42, 1912, p. 492 (Okinawa).

Pseudoserranus louti var. flavimarginata
Klunzinger, Fische Roth. Meer, 1884, p.
7.

Variola louti var. flavimarginata
Weber, Siboga Exped., vol. 85, ^{Fische} 1913, p. 198
(Banda).

Serranus phaeistomus Swainson, Nat.
Hist. Animals, ^{Fishes}, vol. 2, 1839, p. 201 (on
Serranus louti Rüppell, pl. 26, fig. 2).

Variola longipinna Swainson, Nat. Hist.
Animals, ^{Fishes}, vol. 2, 1839, p. 202 (on
Serranus louti Rüppell, pl. 26, fig. 2).

Depth $5\frac{1}{5}$; head $3\frac{2}{3}$, width $1\frac{1}{2}$. 2198

Snout $3\frac{2}{3}$ in head from snout tip; eye $3\frac{1}{4}$, greater than snout, $1\frac{1}{5}$ in interorbital; maxillary reaches $\frac{4}{5}$ to eye, length $3\frac{1}{4}$ in head from snout tip; interorbital low. Gill rakers 9.

Scales 30 in lateral series; 7 transversely, 13 predorsal.

D. V - 5 to 7, second spine 2 in total head, first branched ray $1\frac{2}{5}$; A. I, 9, first branched ray $1\frac{3}{4}$; caudal 1?, emarginate?; least depth of caudal peduncle $2\frac{3}{5}$; pectoral ?; ventral $1\frac{9}{10}$.

Pale yellowish brown, with small scattered darker spots on upper side. Silvery longitudinal band along middle of side. Length 50 mm. (Rendahl.)

North-west Australia.

2199

Craterocephalus fluviatilis McCulloch

Craterocephalus fluviatilis McCulloch,
Proc. Roy. Soc. Queensland, vol.
24, p. 49, pl. 1, fig. 1, August 29,
1912 (type locality, North Yankoo
Creek, Harrindera; junction of
Lamoi River and Barwon River,
and McIntyre, New South Wales).

— Jordan and Hubbs, Stanford
Public., p. 45, 1919 (reference). —
Waite, Rec. South Austral. Mus.,
vol. 2, no. 1, p. 103, April 23, 1921 (reference).
~~vol. 2, no. 1, p. 103, 1923~~

— McCulloch and Whitley, Mem.
Queensland Mus., vol. 8, pt. 2, p.
140, July 7, 1925 (reference). —
Whitley, Rec. Austral. Mus., vol. 15,
no. 5, p. 295, April 6, 1927 (Inverell,
New South Wales, spawning; Ithaca

opposite hind eye edge, anteriorly
3 or 4 much enlarged forming
conspicuous area at occiput or
behind eyes. Muzzle, interorbital
and chin naked. Breast scaly.
On tail posteriorly scales much
larger than on fore part of
body. Scales with 9 to 11 basal
radiating striae; circuli fine,
concentric. Large posterior scales of
tail with 39 or 40 close set basal
radiating striae.

D. VI - I, 25, I to I, 27, I, spines
flexible, second $1\frac{1}{2}$ to $1\frac{7}{8}$ in
head, second dorsal height $1\frac{1}{2}$ to
A. 26, I or 27, I, fin height $1\frac{3}{4}$ to
 $1\frac{4}{5}$; least depth of caudal pedu-
cle 2 to $2\frac{1}{3}$; pectoral $1\frac{1}{5}$ to $1\frac{1}{4}$, rays
I, 19; ventral I, 5, fin 1 to $1\frac{1}{5}$ in
head; caudal $2\frac{1}{3}$ to $3\frac{1}{8}$ in rest
of fish.

Creek near Brisbane). — ²²⁰⁰McCulloch,
Mem. Austral. Mus., vol. 15, no. 5,
~~p. 295, April 6, 1927~~ 8, pt. 2, p.
140, July 7, 1925 (reference).

eye edge, length $2\frac{1}{8}$ to $2\frac{1}{5}$ in head; lips rather narrow, fleshy; teeth uniserial, conic, moderate, in jaws, 5 or 6 anterior upper lightly canine-like and much larger inner pair below behind mandibular symphysis, directed backward; no teeth on palate; tongue large, thick, fleshy; interorbital $5\frac{1}{4}$ to $5\frac{3}{5}$ in head, lightly convex, with superciliary swelling each still trifle higher. Gill rakers $5+8$, robust, curved, subbranchial larger, $\frac{1}{2}$ of gill filaments, which equal $1\frac{1}{2}$ eye diameters.

Scales 60 or 61 in lateral series to caudal base and 6 or 7 more on latter; 18 or transversely above anal origin;

2201

Depth 5; head $3\frac{2}{3}$ to $3\frac{3}{4}$. Snout $3\frac{2}{5}$ in head; eye 3, greater than snout or interorbital, greater than interorbital with age; maxillary reaches $\frac{2}{3}$ to eye, length $3\frac{3}{4}$ in head; teeth minute, uniserial in each jaw; interorbital apparently level.

Scales 31 to 33 in lateral series; 7 to 10 transversely. Caudal base scaly. Scales cycloid, concentrically striated.

D. V to VII — I, 7 or 8, third spine $2\frac{1}{3}$ in head, first branched ray $2\frac{1}{5}$; A. I, 8 or 9, first branched ray 2; caudal $1\frac{1}{5}$, emarginate behind; least depth of caudal peduncle $3\frac{1}{8}$; pectoral $1\frac{4}{5}$, rays 12 or 13; ventral rays I, 5, fin $2\frac{1}{8}$ in head, reach to or not quite to vent.

In formaline whitish, with dark (silvery) band from above

pectoral base to caudal base,
obscure along side of head on
side of snout. Upper part of
head and back with more or less
numerous minute black specks,
arranged near edges of scales
above lateral band. Body below
with few scattered specks and
median row on under surface
of caudal peduncle. Length 61
mm. (McCulloch.)

Murray River basin in New
South Wales and Queensland.

Craterocephalus stercus-muscarum
(Günther)

Atherina stercus-muscarum
Günther, Ann. Mag. Nat. Hist.,
ser. 3, vol. 20, p. 64, July 1, 1867
(type locality, Cape York).

— Macleay, Proc. Linn. Soc. New
South Wales, vol. 5, pt. 2, p. 40,
1881 (copied), ~~vol. 9, pt. 1, p. 40, 1884~~
(reference).

Craterocephalus stercus-muscarum
Jordan and Hubbs, Stanford Public,
p. 45, 1919 (Eidsvold). — McCulloch
and Whitley, Mem. Queensland Mus.,
vol. 8, pt. 2, p. 140, July 7, 1925
(reference). — McCulloch, Mem.
Austral. Mus., vol. 5, pt. 1, p. 110,
June 29, 1929 (reference).

palate or tongue; tongue not distinct
or little free from floor of mouth;
interorbital $\frac{2}{5}$ of eye, low, depressed
or level. Gill rakers 1 + 4, short
points about $\frac{1}{2}$ of gill filaments,
which nearly $\frac{1}{3}$ of eye.

Scales 26 or 27 in axial lateral
series from over gill opening to
caudal base and 2^{or 3} more on
latter; 8 transversely between
dorsal and anal origins;
predorsal naked medially,
also pectoral base, chest and
breast. On fins only few small
scales on caudal base. Scales
with 15 or 16 slightly radiating
basal striae; 34 or 35 apical
papules, smaller medially;
circuli fine, basal.

D. VI - I, 8, spines somewhat
flexible, third spine $1\frac{7}{8}$ to $2\frac{1}{5}$ in

Atherinichthys maculatus Macleay,
 Proc. Linn. Soc. New South Wales,
 vol. 8, pt. 2, p. 207, July 17, 1883
 (type locality, Lillesmere Lagoon, ^{Burdekin, Queensland});
 vol. 9, ^{pt. 1,} p. 40, 1884 (reference).

Craterocephalus maculatus McCulloch, Proc. Roy. Soc. Queensland,
 vol. 24, p. 52, pl. 1, fig. 2, August
 29, 1912 (Cairns, Townsville,
 Eidsvold, Burnett River, Brisbane).

Canal, Bangkok. December 14, 1933.
Length 41 mm. Type.

Differs from known species
in the combination of its characters,
especially the broad swollen
cheeks, large scales, long
maxillary, protruding mandible,
dentition and coloration.

(Named for Siam.)

Rhinogobius chengmaiensis, new
species. Figure 126.

Depth $4\frac{7}{8}$ to $5\frac{1}{5}$; head $2\frac{7}{8}$ to
 $3\frac{1}{5}$, width $1\frac{1}{3}$ to $1\frac{1}{2}$. Snout $3\frac{1}{4}$ to
 $3\frac{2}{5}$ in head from snout tip; eye
 $3\frac{4}{5}$ to 4, subequal with snout,
much greater than interorbital;
maxillary rather short, reaches
opposite front eye edge, length
3 to $3\frac{1}{2}$ in head from snout tip;
teeth simple, conic, little curved,

Depth $4\frac{4}{5}$ to $5\frac{1}{4}$; head $3\frac{2}{3}$ to $4\frac{1}{4}$.
 Snout $4\frac{3}{4}$ in head from snout tip;
 eye $2\frac{1}{2}$ to $3\frac{1}{4}$, - greater than snout,
 1 to $1\frac{1}{2}$ in interorbital; maxillary
 reaches $\frac{3}{4}$ to eye, length $4\frac{1}{8}$ in
 head from snout tip; teeth minute,
 in 3 or 4 rows above, 1 or 2 rows
 below; interorbital very low.

Scales 32 or 33 in lateral
 series; 7 transversely.

D. VI to VIII - I, 6 to I, 8, first
 spine $\frac{2}{5}$ in total head length,
 first branched ray $1\frac{4}{5}$; A.
I, 8 or I, 9, first branched ray
 $\frac{3}{4}$; caudal $1\frac{1}{10}$, emarginate
 behind; least depth of caudal
 peduncle 3; pectoral $1\frac{3}{4}$, rays
 11 to 13; ventral rays I, 5, fin
 $1\frac{4}{7}$ in total head.

In alcohol whitish, with
 dark axial lateral band from
 side of snout to caudal base.

Upper part of head and back more or less densely speckled with black. In well marked examples each scale on side with central dark spot. Length 74 mm.

(McCulloch.)

Coastwise streams of Queensland north to Cape York.

Schauensee.

10 ht. anal. rays

Cyprinidal

8 ht. no. 21, rays

Rasbora

Rasbora lateristriata (Bleeker)

Two, 43 to 45 mm. (both caudal fins broken off), Ban Thung Luang. ~~January 19, 1954~~ Lateral complete. Dorsal origin nearer caudal base than snout tip, behind ventral origin. Black lateral band present, wider on tail. Dark band down middle of back. Faint bar of dusky dots along anal base.

Rasbora stigmatura, new spec

Figure 5.

Depth 4 to $4\frac{1}{2}$; head $3\frac{1}{5}$ to $3\frac{3}{4}$ width $2\frac{1}{8}$ to $2\frac{1}{5}$. Snout $3\frac{1}{8}$ to 4 in head from snout tip; eye 2

2207

Craterocephalus honoriae (Ogilby)

Atherina honoriae Ogilby, Mem.
Queensland Mus., vol. 1, p. 42, pl.
12, pl. 12, fig. 3, November 27, 1912
(Type locality, Herang Creek,
Brisbane, Queensland).

Craterocephalus honoriae Jordan
and Hubbs, Stanford Public.,
p. 45, 1919 (reference). — McCulloch,
and Whitley, Mem. Austral.
Mus., vol. 8, pt. 2, p. 140, July 7,
1925 (reference). — McCulloch,
Mem. Austral. Mus., vol. 5, pt. 1,
p. 110, July 29, 1929 (reference).

blackish cross bars. Pectoral
ray above, whitish below, Ventrals
white. On caudal peduncle several
large blackish gray blotches.

A. N. S. P., No. 60019.
Bangkok, Siam. March 12, 1933.
Length 200 mm. Type.

Only the type known. Distinguished
briefly by its color markings, a
combination not found in any
other species.

(For Dr. Edward H. Taylor,
of Kansas University, in slight
appreciation of his work on the
herpetology of the Philippines.)

Boleophthalmus smithi, new species.

Figure 129.

Depth $7\frac{2}{3}$ to $8\frac{3}{4}$; head 5 to $5\frac{2}{5}$,
width $1\frac{3}{4}$ to $1\frac{7}{8}$. Snout $3\frac{2}{5}$ to $3\frac{1}{2}$
in head; eye $5\frac{1}{2}$ to 7, $1\frac{1}{8}$ to 2 in
snout, subequal with interorbital;

2208

Depth $5\frac{4}{5}$; head $4\frac{1}{3}$, depth about 2. Snout 4 in head from snout tip; eye 3, greater than snout or interorbital; maxillary reaches eye, length 3 in head; interorbital $1\frac{1}{4}$ to $1\frac{1}{3}$, flat. Gill rakers $5+12$, rather short, stout, $\frac{1}{4}$ of eye or little longer than gill filaments.

Scales 32 to 34 in lateral series; 6 transversely, 13 or 14 predorsal, 6 interdorsal, 1 row on cheek.

D. V— I, 7 or 8, second spine $2\frac{1}{6}$ in head, first branched ray $1\frac{9}{10}$; A. I, 10, first branched ray $1\frac{7}{8}$; caudal 1, forked; least depth of caudal peduncle $3\frac{1}{8}$; pectoral $1\frac{2}{5}$, rays 13; ventral $1\frac{9}{10}$. Vent close behind base of first dorsal spine.

2209

Clear yellow above, dull below.
Each scale of median dorsal line
with 2 or more black spots and
numerous brown dots, latter
present on other dorsal scales,
mostly as diminishing marginal
band. Broad violet band along
middle of side from above pectoral
base to caudal base. All scales
below band immaculate, except
along median ventral line,
which black dotted, Snout
powdered with brown. Large
blackish occipital blotch.
Fins immaculate. Length 78 mm.

(Ogilby.)

Queensland.

Craterocephalus nouhuysi (Weber)

Atherinichthys nouhuysi Weber,
 Notes Leyden Mus., vol. 32, pt. 4,
 p. 229, 1910 (type locality, Lorentz
 River, Southern New Guinea);
 Nova Guinea, vol. 9, pt. 4, p. 555,
 fig. 26, 1913 (Vander Sande River;
 Alkmaar; Beaufort River;
 Lorentz River). — Regan, Trans.
 Zool. Soc. London, vol. 20, pt. 6,
 p. 276, 1914 (Mimiba River,
 New Guinea).

Craterocephalus nouhuysi
Jordan and Hubbs, Stanford
 Public., p. 46, 1919 (reference). —
Weber and Beaufort, Fishes Indo
 Austral. Archip., vol. 4, p. 278,
 fig. 71, 1922 (Lorentz River basin). —

forward to end of snout. Head
largely covered with minute scales.
Scales with 29 to 34 radiating
anterior, half or less often incomplete;
circuli concentric, complete,
moderate.

D. VII—26, spines flexible,
fourth $1\frac{2}{5}$ in head, second fin
height 2; A. 28, fin height
 $2\frac{2}{3}$; least depth of caudal
peduncle $2\frac{1}{5}$; pectoral $1\frac{2}{5}$, rays
8; ventral I, 5, length $1\frac{3}{5}$ in
head; caudal $4\frac{1}{2}$ in rest of fish.

Gray brown above, sides
paler, entire under surfaces
whitish. Head gray to drab
above, white below. Iris gray.
Lips all more or less dark gray.
Obscure dark gray blotches on
cheek and opercle. Ventrals dull
gray. Anal whitish. Caudal gray,

Fowler, mem. Bishop Mus., vol. 10,
p. 120, 1928 (compiled).

Live, 127 to 166 mm., Bangkok

Boleophthalmus taylori, new species

Figure 128.

Depth $7\frac{7}{8}$; head 6, width 1
Snout 5 in head; eye 7, $1\frac{1}{4}$
snout, greatly exceeds interorbital
maxillary extends back opposite
hind eye edge, length 3 in head
lips rather narrow, fleshy; single
row of large, conic, well-spaced
brownish teeth, lower somewhat
flaring outward, especially in
front; no teeth on palate; tongue
large, fleshy, convex; interorbital
 $\frac{3}{5}$ of eye, low, little convex.
Gill rakers 4 + 6, low, slender
curved denticles, fleshy basally
3 in gill filaments, which $1\frac{1}{2}$
times eye.

Scales 160 in axial lateral series
to caudal base; 35 transversely

Depth 4 to $4\frac{1}{3}$; head $3\frac{3}{5}$ to $4\frac{1}{10}$.
 Snout $2\frac{9}{10}$ in head; eye $3\frac{1}{2}$,
 $1\frac{1}{4}$ in snout, $1\frac{1}{2}$ in interorbital;
~~premaxillary~~ reaches $\frac{4}{5}$ to eye,
 length 3 in head; lips somewhat
 swollen; very fine teeth on inner
 side of jaws, palate toothless;
 interorbital low.

Scales 36 to 39 in lateral
 series; 8 to 10 transversely, 14 to
 17 predorsal, 1 row on cheek.
 Opercle scaly.

D. VI or VII — I, 8 or 9, third
 spine $2\frac{1}{10}$ in head, first branched
 ray $1\frac{4}{5}$; A. I, 10, first branched
 ray $1\frac{3}{5}$; caudal I, emarginate;
 least depth of caudal peduncle
 $2\frac{2}{5}$; pectoral $1\frac{2}{5}$, rays I, 13 to 15;
 ventral rays I, 5, fin $1\frac{4}{5}$ in
 head.

Yellowish brown, paler below.

belly above ventrals.

6 Pap 805, streak; Vargus; with reference to the yellow abdominal band.

Diplodus auriventris (Peters).

Vargus auriventris Peters, Archiv Naturgesch., 1855, p. 243. Mozambique.

$\frac{1}{m}$ Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 445 (copied). $\frac{1}{m}$ Peters, Monatsber.

Akad. Wiss. Berlin, 1876, p. 438 (Mauritius).

$\frac{1}{m}$ Steindachner, Sitz. Ber. Akad. Wiss.

Wien, Math.-Naturw. Klasse, vol. 74, pt. 1, 1876, p. 204 (Mauritius).

Diplodus auriventris Barnard, Ann.

South African Mus., vol. 21, pt. 2, Oct. 1927, p. 689 (reference).

Depth little over $2\frac{3}{8}$; head $3\frac{1}{3}$.

Dorsal profile well convex. Snout steep, convex; eye $3\frac{2}{5}$ in head; ~~interorbital~~ ~~6~~ 6 front upper incisors with 3 or 4

Silvery lateral band from head
to caudal. Sometimes dark
blotch at caudal base. Fins
hyaline. Length 120 mm.

(Weber and Beaufort.)

Fresh waters of Southern New
Guinea.

bands, first through eye, second through shoulder, 6 often faint or even absent may cross caudal peduncle. Snout black. Dorsal, anal and ventrals blackish. Length to 500 mm. (Barnard.)

Mediterranean and Eastern Atlantic to South Africa and Natal. Although Barnard retains Charax cervinus Lowe as distinct following Günther largely on the basis of 12 upper and 8 lower incisors. Günther discussed the conflicting characters set down by Lowe and Valenciennes, which appear largely inaccuracies so that probably the names involved really apply to the Mediterranean species, first noticed by Rafinesque.

Charax Rhabdosargus new subgenus 6

Type. $\frac{1}{m}$ Sargus auriventris Peters.

Diagnosis. $\frac{1}{m}$

no black blotch on caudal peduncle. narrow golden longitudinal band each side of

2214

Craterocephalus
Chilatherina eyresii (Steindachner)

Atherinichthys eyresii Steindachner,
Anz. Akad. Wiss. Wien, 88, ^{pt. 1,} 1884 ~~1884~~,
p. 444 (type locality, Probably near
Lake Eyre);
1075

Sitzb. Ber. Akad. Wiss. Wien, math.-
naturw. Kl., vol. 88, pt. 1, p. 1075,
1884 (type).

Craterocephalus
~~Chilatherina~~ eyresii Mc Culloch and
Waite, Rec. South Austral. Mus.,
vol. 1, ^{no. 1,} p. 43, fig. 27, ^{May 24,} 1918 (Strangway's
Springs; Zietz's material).

— Jordan and Hubbs, Stanford
Public., p. 45, 1919 (reference). —
Mc Culloch, Mem. Austral. Mus.,
vol. 5, pt. 1, p. 109, June 29, 1929
(reference).

174 to 190 mm. Also example 144 mm. long from Bangkok.

Known by its anteriorly minute scales, enlarged little behind eyes and large scales on the tail, also its coloration.

(For Dr. Hugh M. Smith, in appreciation of his studies on Siamese fishes.)

Trypauchenidae

Trypauchen vagina Schneider
Three, 118 to 145 mm., Bangkok.

Batrachoididae

Coryzichthys gangene (Buchanan-Hamilton)

One, 64 mm., Bangkok. Far more mottled and variegated than shown in Day's figure.

Athenina interioris Giéty, Proc.
Roy. Soc. South Australia, vol. 33,
p. 264, December 1909 (no description
(type locality, Overflow of
artesian water of Coward and
Strangways Springs, Central
Australia)).

pale and under surfaces whitish.
On middle of back 6 large,
dark brown, saddle-like blotches,
each much less than pale
interspaces. Along middle of side
series of 4 dark brown blotches,
each little in advance of dark
saddle-like blotch on back above.
Head brown above, with obscure
diffuse blotches, under surfaces
paler to whitish. Iris brownish.
Vertical fins gray brown, first
dorsal narrowly edged with
blackish and anal dark gray.
Pectoral suffused with brown,
~~more~~ darker basally. Ventrals
whitish.

A. N. S. P., No. 60020. Bangkok
~~Siam~~ March 12, 1933. Length
194 mm. Type.

A. N. S. P., Nos. 60021 to 60022

2216

Depth $4\frac{3}{5}$; head $3\frac{1}{3}$. Snout $3\frac{3}{4}$ in head; eye $3\frac{3}{4}$; maxillary reaches $\frac{7}{8}$ to eye, length $3\frac{1}{8}$ in head; teeth uniserial, curved, small, well spaced, palate and tongue toothless; interorbital $3\frac{1}{5}$ in head, flat. Gill rakers below 11, short, thick.

Scales 31 to 33 in lateral series; 13 or 14 transversely. Scales cycloid, concentrically striated, with basal radiating ridges.

D. V or VII — I, 6 or 7, third spine $2\frac{2}{5}$ in head, first branched ray 2; A. I, 6 to 8, first branched ray 2; caudal $1\frac{1}{4}$, forked; least depth of caudal peduncle $2\frac{7}{8}$; pectoral $1\frac{7}{8}$, rays 12 or 13; ventral rays I, 5, length 2 in head.

Pale or bleached, with numerous minute dots on back, bordering

scales laterally. Fins with dark
dots. Length 54 mm.
(McCulloch and Waite.)

Craterocephalus sp. (Port Phillip)
Port Phillip, Victoria, Port Phillip, Victoria,
Port Phillip, Victoria, Port Phillip, Victoria,
34, 1872 (type locality, Port
Phillip, Victoria); Sitzs. Ber.
Akad. Wiss. Wien, math.-naturw.
Kl., vol. 80, pt. 1, p. 394, 1879 (1880)
(Port Phillip). — Macleay, Proc.
Linn. Soc. New South Wales, vol.
9, p. 31, 1884 (copied).

Craterocephalus sp. Jordan and
Hubbs, Stanford Public., p. 46, 1917
(reference). — McCulloch, Mem.
Austral. Mus., vol. 5, pt. 1, ^{p. 110,} June
27, 1929 (reference).

Epinephelus louti Boulenger, Cat.
Fishes Brit. Mus., vol. 1, 1875, p. 173
(Red Sea, Zanzibar, Seychelles,
Mauritius, Mascarenes, Manado,
Amboina, Timor, Aneiteum, Samoa,
Marshall).

Epinephelus (Variata) louti Pellegrin,
Bull. Soc. Zool. France, vol. 39, 1914, p.
224 (Nossi-Bé, Madagascar).

Labrus punctulatus Lacépède, Hist. Nat.
Pois., vol. 3, 1802, pp. 431, 477, pl. 17, fig. 2.
The Great Ocean [Indo-Pacific].

Serranus punctulatus Valenciennes, Hist.
Nat. Poiss., vol. 2, 1828, p. 367 (Moluccas,
Waigiu, Ceylon); vol. 9, 1853, p. 435
(Mauritius). — Duoy and Saimard,
Voy. Astrolabe, Zool., vol. 3, 1834, p. 654,
pl. 3, fig. 2 (New Ireland). — Thiessonot,
Notes Ile Reunion, vol. 2, 1862, p. 23

Body compressed, lanceolate, depth 7; head $3\frac{3}{4}$. Snout $1\frac{1}{2}$ in eye; eye 4 in head, equals interorbital; maxillary reaches below eye; band of small teeth in both jaws anteriorly and on vomer, not on palatines.

Scales 45 in lateral series; 8 transversely.

D. VII—I, 11, median; A. I, 12; caudal forked; pectoral not reaching first dorsal; ventral inserted somewhat before middle of pectoral.

Dark above, silvery below. Broad silver blue lateral band along middle of body. Length 140 mm. (Klunzinger.)

Victoria.

2220

Craterocephalus obscura (Castelnau)

Atherinichthys obscura Castelnau,
Victor. Offic. Rec. Philadelphia
Exhib. (Res. Fish. Austral.),
p. 31, 1875 (type locality, Swan
River, Western Australia). —
Macleay, Proc. Linn. Soc. New
South Wales, vol. 5, pt. 2, p. 43,
1881 (copied).

Craterocephalus obscurus Jordan
and Hubbs, Stanford Public.,
p. 46, 1919 (reference). — McCulloch,
Mem. Austral. Mus.,
vol. 5, pt. 1, p. 110, June 29, 1929
(reference).

$\frac{2}{3}$ to 2; A. I, 7, sixth ray
 $\frac{3}{4}$ to 2; caudal $1\frac{1}{8}$ to $1\frac{1}{5}$, convex
behind; least depth of caudal
peduncle $2\frac{3}{4}$ to 3; pectoral 3 to
 $\frac{1}{4}$ in combined head and body
to caudal base; ventral $1\frac{1}{4}$ to
 $\frac{2}{5}$ in total head.

Pale brownish. Along side of
body 5 large ill-defined dark
blotches. Head with obscure dark
reticulations, also extended on
predorsal. Obscure dark spots on
cheek, fewer on snout above.
Iris slate gray. Fins largely
uniformly pale. Spinous
dorsal with black spot, nearly
large as eye, anterior on fin,
also numerous other smaller
and lighter dark spots. Soft
dorsal with 4 rows of dark
spots, caudal with 5, which

Depth $8\frac{1}{2}$ in total; body very elongate. Eye large, 3 in head, equals snout; mouth cleft far before front edge of orbit. Scales? D. VII - I, 11, first dorsal inserted little behind ventral bases; A. I, 16; caudal very deeply forked. Color blackish, width of silvery band varies from 1 to 3 series of scales. Length 38 mm. (Macleay.) Swan River, Western Australia.

2222

Genus Atherion Jordan and Starks

Atherion Jordan and Starks, Proc.
U.S. Nat. Mus., vol. 24, p. 203, 1901.
(Type Atherion elymus Jordan
and Starks, monotypic.)

Body slender, compressed, tapers
backward. Head moderate. Snout
short. Eye large, little advanced
from middle. Mouth small,
oblique, terminal. Maxillary
short. Teeth evident in jaw,
whole mouth roof granulated.
Interorbital wide, convex.
Scales rather small, edges entire.
Head furnished with small,
tooth like points, maxillary
anteriorly covered, row over
superior orbital rim, - over
interopercle, front part of subopercle
preorbital and lower preopercle limb.

First dorsal little postmedian.
Second dorsal begins behind anal
origin. Anal begins close behind
first dorsal, longer than second
dorsal. Caudal forked. Pectoral
high, moderate. Ventral smaller,
below posterior part of pectoral.
Vent near front of anal.

Characterized chiefly by
the roughened surface of the
muzzle and front of the head,
due to minute spines.

Bedotia geayi Pellegrin

Bedotia geayi Pellegrin, Bull. Mus.
Hist. Nat. Paris, vol. 13, p. 205, 1907
(type locality,

Bull. Soc. Zool. France, vol. 39, p. 179,
1914 (

— Boulenger, Cat. Fresh Water Fish.
Africa, vol. 4, p. 77, 1916 (compiled). —
Jordan and Hubbs, Review of
Atherinidae, p. 20, December 18, 1916.
(reference). — Pellegrin, Mém.
Acad. Malgache, vol. 14, p. 164, pl. 3,
fig. 4, 1933 (Madagascar).

2222

Atherion elymus Jordan and Starks

Atherion elymus Jordan and Starks,
Proc. U. S. Nat. Mus., vol. 24, p.
203, fig. 3, 1901 (type locality,
Misaki, Sagami). — Franz,
Abhandl. Kon. Bayer. Akad. Wiss.,
vol. 4, Suppl. Band 1, p. 25, 1910
(Aburatsubo). — Jordan, Tanaka,
Snyder, Journ. College Sci. Tokyo,
vol. 33, p. 112, 1913 (reference). —
Jordan and Hubbs, Stanford Public.,
p. 29, pl. 1, fig. 1, 1919 (reference). —
Schmidt, Trans. Pac. Comm.
Acad. Sci. U. S. S. R., vol. 2, p. 37,
1931 (Misaki).

Southern Arabia, Portuguese East Africa, Seychelles, Mascarene Islands, East Indies, Philippines, Melanesia, Polynesia. A handsome species which we chiefly define by its color, which light red or orange, sometimes or not with scattered blue dots on the head and front of the back though it never shows the bluish network on the head as in Cephalopholis sonnerati which is also a much larger species. Fowler reported an example of Cephalopholis aurantius from Delagoa Bay, 333 mm. long which shows 123 scales in the lateral line to the caudal base. We still believe it to be that species though Barnard has placed it with C. sonnerati, pointing out that "his description differs from that of."

~~Atherion maccullochii Jordan and
Hubbs~~

Atherion maccullochii Jordan and
Hubbs, Stanford Public., p. 30, 1919
type locality, Lord Howe Island).

with narrow whitish line close
to and concurrent with fin
edge. Pectoral deep golden orange.

~~Atherina villosa Dunder and Mohr~~

Atherina villosa Dunder and Mohr,
Mitteil. Naturh. Mus. Hamburg,
vol. 42, p. 135, fig. 10, 1926 (type
locality, Iu Island, New
Pommern; Friedrich Wilhelm
Harbor, New Guinea). — Fowler,
Mem. Bishop. Mus., vol. 10, p. 117,
1928 (compiled).

yellow example. The species is doubtless far more variable than Boulenger's account would suggest. Our description from the type of Bodianus indebilis, a small example obtained at Padang and now in the Academy of Natural Sciences of Philadelphia.

2225

Depth 6; head 4. Snout 4 in head;
eye 3, greatly exceeds snout;
maxillary reaches $\frac{3}{4}$ to eye, length
 $3\frac{7}{8}$ in head; interorbital wider
than eye, convex, low.

Scales 43 in lateral series; 7
transversely, 16 predorsal. Body
scales with entire edges.

D. V - I, 11, second spine $3\frac{1}{5}$ in
head, first branched ray $2\frac{2}{3}$; A.
I, 16, first branched ray $2\frac{3}{4}$;
Caudal $1\frac{1}{5}$, forked; least depth
of caudal peduncle; pectoral $1\frac{2}{5}$;
ventral $2\frac{2}{5}$.

Slaty, no silvery apparent except
trace at opercles. Each scale of back
with large blackish spot. Top of
head and snout black. Lateral
edge of lower jaw black. Black
lateral stripe on third and part
of fourth rows of scales, broader
about middle, contracting at caudal
peduncle and again widening at
caudal base. Fins colorless,

except caudal, which slightly dusky. Length 38 mm.

(Jordan and Starks.)

Japan. I can find very little in the descriptions of Atherion maccullochii Jordan and Hubbs and Atherina villosa Duncker and Mohr to distinguish them as distinct species, the former based on material 49 mm long and the latter 40 mm. As the increased scales 47 (44 in latter species) and soft anal rays 15 or 16 (12 to 14 in latter species) seem to represent the essential differences for Atherion maccullochii, they do not appear to me to be beyond the limits of variation. Jordan and Hubbs found 14 anal rays in the type and 2 paratypes of Atherion clypeus, though the figure by Jordan and Starks shows 16.

2227

Genus Iso Jordan and Starbck

Iso Jordan and Starbck, Proc.
U.S. Nat. Mus., vol. 24, p. 204, 1901.
(Type Iso flos-maris Jordan
and Snyder, monotypic.)

Tropidostethus (not Phillippi 1863)
Ogilby, Proc. Linn. Soc. New South
Wales, vol. 20, p. 322, 1895 (type
Tropidostethus rhizophilus
Ogilby, monotypic.)

3, rays 8, soft anal also ending
in point. Caudal emarginate,
angles pointed.

Indo-Pacific.

2228

Body elongate, strongly compressed, tapering posteriorly. Breast compressed to edge, belly with thick sharp fleshy fold of skin, at least in male. Head short, blunt. Snout obtuse. Eye rather small, high, advanced. Mouth small, oblique. Premaxillaries protractile, not movable. Teeth very small in jaws and on palate. Gill membranes separate, free from isthmus. Gill rakers slender. Scales very small, edges smooth. Head and front part of body scaleless. First dorsal little premedian, well before second dorsal, which begins well behind origin of long anal. Caudal forked. Pectoral high. Ventral rather small, below hind part of pectoral. Vent close before anal,

2229
"They are essentially surf-fishes, coming in with the waves, and being swept up into the gulches and pools on the reefs; they never descend to the bottom, but swim here and there, keeping but a few inches beneath the surface; the pectoral fins are always kept fully expanded, at right angles to the body, and motionless, being utilised in fact solely as balancing media; the caudal fin and pedicle have a distinct downward curvature when the fish is swimming."

(Agilby.)

Analysis of Species

a.¹ Depth 5.

b.¹ Eye 3 to $3\frac{1}{3}$ in head; maxillary scarcely reaches eye. flox-maris.

b.² Eye $3\frac{1}{2}$ in head; maxillary reaches eye. rhotophitus.

a.² Depth $3\frac{1}{4}$; eye less than 3; maxillary reaches $\frac{1}{4}$ in eye. natalensis.

Analysis of Species

a. Anal I, 7 to I, 12.

b. Scales 25 in lateral series;
anal I, 7. pauciradiatus.

b.² Scales 30 to 39 in lateral series;
anal rays 9; eye $3\frac{1}{4}$ in head.
capreoli.

Iso flos-maris Jordan and Starks²²³¹

Iso flos-maris Jordan and Starks,
Proc. U. S. Nat. Mus., vol. 24, p.
205, fig. 4, (1901) (type locality,
Sagami Province; Idsu).

Jordan, Tanaka, Snyder, Journ.
College Sci. Tokyo, vol. 33, p. 112,
1913 (reference).

— Jordan and Hubbs, Stanford
Public., p. 47, 1919 (reference).

on body is caudal rays, with
4 slender graduated spines in
front, followed by 10 branched
rays. Anal with very long base,
begins below pectoral, base
of spinous portion $\frac{2}{5}$ base of
soft portion. Caudal broad,
slightly emarginate behind.
Pectoral inserted below level
of eye, little longer than head,
median rays longest. Ventral
inserted before pectoral, with
very long simple ray nearly
equal to length of pectoral fish,
jointed and with articulations
smaller terminally, also end
deeply bifurcate for about
terminal third. Type
Deschampsia chryseus new species.

This interesting genus is
apparently ^{easily} well distinguished
by its peculiar bifid ventrals.

Depth 5; head $5\frac{2}{5}$. Snout $4\frac{1}{4}$ in head; eye 3 to $3\frac{1}{3}$, greater than snout; maxillary scarcely reaches eye, length $3\frac{2}{5}$ in head; teeth very small in jaws, on vomer and palatines; interorbital little wider than eye. Gill rakers $4 + 13$, slender, $\frac{2}{3}$ in eye.

Scales 59 in lateral series; Head entirely scaleless, variably so on anterior part of body. Scales with entire smooth edges.

D. IV - I, 16, first spine 3 in total head length, first branched ray $2\frac{7}{8}$; A. I, 23, first branched ray $2\frac{1}{2}$; caudal 1, forked; least depth of caudal peduncle 3; pectoral $1\frac{1}{3}$; ventral $2\frac{1}{4}$.

Apparently translucent in life; colorless in spirits. Broad lateral blackish and silvery

hind nostril or to eye in young,
length $2\frac{4}{5}$ to $3\frac{1}{10}$ in head; teeth 8
slender, truncate incisors forward in
each jaw, other teeth uniserial;
interorbital $3\frac{1}{8}$ to $3\frac{1}{5}$, broadly convex;
preopercle entire. Gill rakers 6+9,
short points, $\frac{1}{3}$ of gill filaments, which
 $1\frac{3}{5}$ in eye.

Scales 56 to 58 in lateral line to
caudal base and 5 to 8 more on latter;
8 or 9 above, 15 below, 20 to 23 predorsal;
5 rows on cheeks to preopercle ridge.
Scales with 10 to 13 basal radiating
striae, edge undulate; 64 to 93 apical
denticles, with 15 or 16 transverse series
of basal elements; circuli fine.

D. X or XI, 13, I or 14, I, fourth spine
2 to $2\frac{3}{4}$ in head, first ray $2\frac{1}{4}$ to 3;
A. III, 11, I, second spine $3\frac{1}{8}$ to $3\frac{1}{4}$, first
ray $2\frac{2}{5}$ to 3; least depth of caudal

band from pectoral base to caudal base, width near pectoral equals ventrals, growing somewhat broader posteriorly and widest medially, narrowing on caudal peduncle, and again broadening at bases of caudal rays as double spot. Lower jaw dusky. Top of head and snout with black markings. Double row of dots from first dorsal to occiput with sometimes ^{other} scattering dots. Behind first dorsal broken band of dots, parting to run each side of second dorsal and continuing on caudal peduncle as double row of dots or diffused band. At shoulder dusky spot, ~~more or less dusky~~.

spines 3.

Eastern Atlantic and Mediterranean
to South Africa.

Puntazzo puntazzo (Cetti) ^{cau¹²⁹}

Vparus puntazzo Cetti, Fauna Sardinia,
1784, p. 28. Vardinia.

Charax puntazzo Günther, Cat. Fishes
Brit. Mus., vol. 1, 1859, p. 453 (Dalmatia;
Lanzarote). ¹/₂ Bernard, Ann. South
African Mus., vol. 21, pt. 2, 1927, p. 709
(Mossel Bay).

Charax capensis Castelnau, Mém. Poiss.
Afrique Australe, 1861, p. 19. Cape of Good
Hope. ¹/₂ Thompson, Marine Biology. Rep.
South Africa, vol. 4, 1918, p. 92.

Depth 2 to 2 ¹/₅; head 2 ⁴/₅ to 3 ¹/₆, width
2 ¹/₈ to 2 ²/₅. Snout 2 ¹/₂ ^{to 3} in head; eye 3
to 4, 1 ¹/₅ to 1 ³/₄ in snout, 1 to 1 ¹/₄ in
interorbital; maxillary reaches opposite

sometimes replaced by scattered dots. Opercles and cheeks more or less dusky. Dark spot at front anal base. Caudal finely marked with transverse zigzag dark bands. Length 65 mm. (Jordan and Starks.)

Japan.

Can¹³⁰ Genus Puntazzo Bleeker

721

Puntazzo Bleeker, Arch. Néerland. Sci. Nat. Harlem, vol. 11, 1876, p. 284. Type Puntazzo annularis Bleeker = Sparus puntazzo Cetti, typotypic. Puntazzo Bleeker proposed to replace Charax Risso. Charax (not Gronow 1763 or Scopoli 1777), Risso, Hist. Nat. Eur. Mérid., vol. 3, 1826, p. 353. Type Sparus antirostris Delaroche = Sparus puntazzo Cetti, monotypic.

Body rather deep. Jaws and muzzle attenuate, form conspicuous rostrum. Eye moderate. Narrow row of incisors, projecting in front of each jaw, besides single row of small teeth in both jaws. Hind nostril oval. Opercle without spine. Preorbital deeper than eye. Branchiostegals 5. Air bladder simple. Pyloric coeca 7. Scales moderate. Cheeks scaled. Dorsal spines 11, depressible in groove. Anal

Iso rhothophilus (Ogilby)

Tropidostethus rhothophilus

Ogilby, Proc. Linn. Soc. New South
Wales, vol. 20, p. 323, 1895 (type
locality, Maroubra Bay, ^{between Port Jackson and Botany Bay,} New South
Wales). — Waite, Rec. Austral.
Mus., vol. 5, p. 234, pl. 25, fig. 1.

Iso rhothophilus Waite, Mem.

New South Wales Nat. Club, vol. 2,

p. 21, 1904. — Jordan and Hubbs,

Stanford Public., p. 47, 1919

(reference). — McCulloch, Mem.

Austral. Mus., vol. 5, pt. 1, p. 110,

June 29, 1929 (reference).

Eight, 89 to 153 mm., Chantaboon.

Anabantidae

Anabas testudineus (Bloch)

Fifty-two, 44 to 102 mm., Chiang Mai; one, 98 mm., Hua Mok.

Betta splendens Regan

Thirty-four, 24 to 54 mm., Chiang Mai; one, 33 mm., Metang River 35 miles north of Chiang Mai.

Betta macrophthalmus Regan

Depth $3\frac{1}{5}$ to $3\frac{1}{4}$. Maxillary reaches eye. Scales 28 or 29 + 3 or 4.

D. II, 23. Thirteen, 35 to 72 mm., Chantaboon.

Deschauensecia, new genus

Body strongly compressed, ellipsoid, deepest at dorsal origin. Head moderate, compressed, lower sides flattened and approximated below, upper profile concave.

Depth 5 in total; head 5 to $5\frac{1}{2}$.

Snout obtuse, convex, less than eye; eye $3\frac{1}{2}$, near dorsal profile; mouth cleft oblique, reaches eye; jaws not protractile; teeth uniserial, short curved row on palatines, none on vomer or tongue.

Scales moderate, thin, cycloid, deciduous. Vertebrae $15 + 29$.

D. IV - I, 15, spinous dorsal above vent, midway between snout tip and caudal base, soft dorsal begins above first third of anal; A. I, 23; caudal forked, rays 17; pectoral rays 14; ventral rays I, 5.

Gray, faded straw yellow in spirits, closely dotted with brown. Broad silvery lateral band, margined above by Emerald stretch,

ventral edge faintly tinged green.
Occiput with large semiform
emerald spot. Nostrils in
emerald spot. Suborbital pale
green. (Agilby.)

New South Wales.

Iso natalensis Regan

Iso natalensis Regan, Ann.
Durban Mus., vol. 2, p. 200, fig. 3,
1919 (type locality, Durban,
Natal). — Jordan and Hubbs,
Stanford Public., p. 48, 1919
(reference). — Barnard, Ann.
South Afric. Mus., vol. 21, pt. 1,
p. 300, June 1925 (copied).

before middle in head. Mouth
small, terminally superior. Lower
jaw slightly protruded in front.
Maxillary largely concealed by
preorbital. Teeth small.
Interorbital broadly convex.
Lower edge of preorbital, preopercle
interopercle, and subopercle finely
and evenly denticulated. Gill
rakers fine, slender, like gill filaments.
Scales ctenoid, large on head, in
more or less even longitudinal
rows above lateral line, below
in rows slightly oblique. Vertical
fins all more or less finely
scaled. Lateral line complete,
axial at first, bends down
slightly over front of soft anal
then slopes up till median at
caudal base. Tubes in lateral
line slender, rather large and
few. Dorsal insertion postmedian

Depth $3\frac{1}{4}$; head $4\frac{2}{3}$. Eye not quite 3 in head, longer than snout; maxillary reaches $\frac{1}{4}$ in eye.

Scales?

D. IV - I, 16, first dorsal origin midway between ventral root and anal origin; A. I, 22.

Broad bluish silvery lateral band, margined above with blackish stripe. Length 52 mm.
(Barnard.)

hatal.

its coloration. Peters describes it briefly:

D. XI, 14; A. III, 11; P. 15; V. I, 5; C. 16. Metallic bluish, head greenish. On belly each side above ventrals narrow golden longitudinal band. Fins dark, hind caudal and lower pectoral edges yellowish.